AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED IN 1831.

PUBLISHED WEEKLY BY J. H. SCHULTZ & CO., AT NO. 9 SPRUCE ST., NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.

SECOND QUARTO SERIES, VOL. X., NO. 16] SATURDAY, APRIL 22, 1854. [WHOLE NO. 940, VOL. XXVII.

☞ The *Mechanical Engineering* department of this paper will be under the charge of Mr. ZERAH COLBURN.

PRINCIPAL CONTENTS.

The Economy of Railroads, as affected by the Adaptation of Locomotive Power.. 241
Journal of Railroad Law,.... 245
Newport and Louisville Railroad,.... 246
Michigan Southern and Northern Indiana Railroad,.... 246
Lands granted for Railroads and other uses,..247
Lake Superior Copper Mines,.... 247
Milwaukee and Mississippi Railroad,.... 247
County Subscriptions to Railroads in Tennessee,247
Stock and Money Market,.... 248
Duty on Railroad Iron,.... 249
Railroads in Brooklyn,.... 250
State Engineers's Report,.... 251
Locomotive "Empire State,".... 252

American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., No. 9 SPRUCE ST.

Saturday, April 22, 1854.

The Economy of Railroads, as Affected by the Adaptation of Locomotive Power—Addressed to the Railroad Interests of New England.

BY ZERAH COLBURN,
Mechanical Engineer.

(Continued from Page 229.)

CHARGES FOR THROUGH FREIGHT PER TON OF 2,000 LBS. PER MILE.

Classification.

First class includes all articles of extra value or hazard, or articles of extra bulk in proportion to their weight, Furs, furniture, and carriages, musical instruments, baskets, etc., are of this class.

Second class includes articles less hazardous, bulky or valuable than those included in first class. Boots and shoes, books and stationery, dry goods, etc., are of this class.

Third class includes articles compactly boxed or rolled, easily handled, and of considerable weight in proportion to their bulk. Hardware, metals in cases or boxes, butter and cheese; dry goods in original packages, etc., are usually of this class.

Fourth class, includes heavy castings or forgings, provisions, earths, minerals, fuel, etc.

Flour and grain, coal, lumber, iron ore, etc. when offering in large quantities, are generally carried at special rates.

Name of road.	1st Class.	2d Class.	3d Class.	4th Class.
N. Y. and Erie, summer,	4.26	3.14	2.34	1.7
" " winter,	4.69	3.45	2.57	1.87
Balt. and Ohio, summer,	3.95	3.10	2.64	2.11
" " winter,	4.74	3.95	3.42	2.64
(Coal and iron not included)				
Rutland and Burlington,	5.00	4.67	3.17	
Burlington to Boston via. Rutland railroad,	4.28	3.21	2.14	
Vermont Central,	5.57	4.43	3.67	2.15
Rouse's Point to Boston via. Vt. Cen. railroad,	3.83	2.99	2.23	1.88
Western railroad.	3.5	2.5	2.0	1.6
Hudson River railroad,	4.17	3.47	2.77	2.08

Receipts from freight per ton per mile for 1853.

New York and Erie railroad	2.5 cents.
Western railroad	2.8 "
Baltimore and Ohio	1.8 "
(Equal to 3.2 cents for general freight and 1.01 cents for coal.)	

The Reading road carries coal for about 1⅔ cents per ton of 2240 lbs. per mile. The charge from Mount Carbon to Richmond, 95 miles, being usually $1,60 cents per ton. The Baltimore and Ohio road are carrying coal at $2,25 per ton for 180 miles, and at $2.50 per ton for 207 miles; less than 1¼ cents per ton per mile.

The *cost* of carrying depends upon the capacity of trains, as much as upon any other circumstance. This leads us directly to the question "how much can be carried in a train?"

This question can be answered only from a knowledge of the capacity of the motive power and the resistance it has to overcome.

The resistances are constant, at the same speeds upon all roads of equal grade and alignment, and kept in an equal state of repair. We have shown that the physical features of the New England roads are generally as severe as those of the principal roads in New York, Pennsylvania and Maryland, with but few exceptions.

We have shown how the resistances are effected by grades. In New England the motive power is generally of one class, without regard to grades. The Western road with its 83 feet grades adopts the motive power used on the 30 feet grades of the Worcester road, and the 40 feet grades of the Fitchburg road, while the capacity of the engines in general use, even for level roads, in New England, is far less than on equally favorable roads in the states of New York, Pennsylvania and Maryland. The only objection against the concentration of power is the want of a large business to employ it. But look at the Western road. Its extent of business and capacity of motive power is exemplified in the following table.

Table of Movement of Freight.

Year.	Tons of freight moved one mile.	Per cent of Eastern bound freight moved.	Per cent of Western bound freight moved.	Miles run by freight trains.
1847....	28,037,628	75	25	513,772
1848....	24,656,129	70	30	454,272
1849....	25,307,146	70	30	460,941
1850....	25,206,308	72	28	453,111
1851....	23,304,050	71.4	28.6	459,923
1852....	23,724,070	69	31	510,468
1853....	28,153,554	66.7	33.3	589,314

Table of Number and Capacity of Trains.

Year.	Through trips each way, equal to miles run	Through trips each way, daily, for 313 days.	Average weight of East bound freight, pr. train.	Do. of West bound do. per train.
			tons.	tons.
1847....	1,646	5.26	81.9	27.3
1848....	1,456	4.65	76.00	32.6
1849....	1,477	4.71	76,86	32.94
1850....	1,456	4,65	80.07	31.13
1851....	1,472	4.70	72.44	29.02
1852....	1,636	5.23	64.13	28.81
1853....	1,888	6.00	64.00	32.

Here is an average of six through trips each way, daily, to do the freighting offering upon the Western road. How would it pay to run six passenger trains each way? It must be admitted that the business is irregular, but in dull times it would be better to have a few large engines in ordinary, than at other times to have a disproportionate number of small engines overtaxed with their work, and thereby depreciated in a corresponding ratio.

The subject of the concentration of power has been before presented to New England railroad managers, but its consideration has either been declined, or incorrect inferences have been drawn in regard to it.

A committee of the stockholders of the Boston

and Worcester road, as long ago as 1840, reported in favor of heavier than the nine ton engines, then in use on that road. They argued that the inefficiency of such engines increased the cost of running freight trains, and thereby imposed charges upon the business of the road, sufficient to prevent its proper development. The directors replied that the engines in use were fully efficient, if two trains each way were run daily. The whole freight moved during the year 1840 was but 31,739 tons, equal to less than *twenty-five* tons of freight per train, each way, on grades nowhere over 30 feet per mile. Truly the directors might say their engines were sufficient for *such* a business. And while the power of these engines was limited to such an average load, their cost of repairs and attendance was as great per mile run as are the engines of double, and nearly treble, the weight now in use. They *cost* nearly as much and earned much less. Hear how the directors then quoted the recommendations of the committee of stockholders.

"They go on to represent the locomotive establishment as entirely inefficient, the engines are described by them as of antiquated patterns deficient in power, and decrepid for want of repairs, although, as they state, thirty-five thousand dollars, had been expended in repairs since the 1st of January, 1838. They say that "the Worcester road is quite behind the age with respect to the power and capacity of its engines." Such was their impression of the inefficiency of the engines, that they make the following recommendation: "Your committee are persuaded, that at least six new engines are required immediately, and would recommend their immediate purchase, as most essential to the success of the road, and would also recommend that no attempts be made to repair most of the engines now in the infirmary, and that for the future, no new engine, *with crank axles*, or mounted on four wheels only, be placed upon the road, and that two of the new engines should be freight engines of superior power."

The directors complacently assumed that the *capacity* of an engine was its *mileage* per annum, and made a comparison of their own with the engines of the Boston and Lowell and the Boston and Providence roads; roads both of which were then suffering from inefficient engines, although the Lowell road was not so bad off, as it has no grades of over 10 feet per mile.

Hear how the directors answered the committee:—

"The engines are found to be of adequate power to convey the ordinary passenger trains at a regular speed of more than twenty miles an hour, and to convey such loads of freight as ordinarily offer, provided the trains are run as often as is required to satisfy the expectations of customers."

The freight trains, as has been said, carried an average less than *twenty-five* tons each.

But in less than three years after, the directors were compelled to adopt practically the very suggestions which had been offered by their stockholders in 1840. In their report for 1844, bearing the prominent names of the report of '41, they tell us, as if from necessity, that

"The cost of road repairs in the last two years, has been increased not only by the acquisition of an additional track, and by the increased number of trains passing over the road, but by the greatly increased weight of loaded freight cars, and of *heavy engines*, which cause a much greater strain upon the rails, especially those of the original track."

The rails originally laid down upon the Worcester road were mostly of only 38½ lbs. per yard, but the wear of the heavy engines would not probably have been so apparent had they have had a better distribution of weight than had been generally adopted at that time.

In 1848 the same men speak, as if from *conviction*, as follows:

"Before the road was opened, it was difficult to convince the public, that the business upon it would be sufficient to meet the charge of a single track, built and equipped in the most economical manner. The work was, therefore, necessarily constructed on the most limited scale of expenditure, but on a plan admitting of expansion as necessity should require. The expenditure has consequently been progressive; from the necessity of affording increased accommodation to keep pace with the increased demands of business. In place of a single track, we have a double one; in place of a light rail, adapted to the use of engines weighing ten tons, we have rails of the heaviest class now in common use, and of a weight unknown at the time when the first track was laid; in place of freight-houses for the deposit of a few loads of merchandise, we have houses which admit of the convenient receipt and delivery of more than a thousand tons per day."

And again:

"The necessity of a great increase of motive power, as well as of cars for the transport of both passengers and freight, in consequence of the great increase of tonnage transported, and of the number of passenger trains, is sufficiently obvious; and it can need no argument to show the expediency of being amply provided with these necessary means of transportation."

It is here proper to make the comparison between the engines now used on the Western road and those used on the Baltimore and Ohio road, The engines of the Western road are those in general use on New England roads; those of the Baltimore and Ohio road are nearly the same in their proportions, as the engines of the Reading, and other great freight roads.

The following comparison is that of the *standard* freight engines of each road.

	Balt. and Ohio.	Western.
Diameter of cylinder,	19 in.	16 in.
Stroke,	22 "	20 "
Diameter of drivers,	43 "	54 "
Number of drivers,	8	4
Weight of engine,	54,200 lbs.	45,000 lbs.
Adhesive weight,	54,200 "	30,000 "
Greatest weight on one wheel,	7,375 "	7,500 "
Diameter of boiler,	46 in.	42 in.
Length of tubes,	14 ft.	10 ft.
Number and size of tubes	103 2½ in.	131 1¾ in.
Tube surface,	903 sq. ft.	600 sq. ft.
Grate surface,	24½ "	10 "
Steam used per mile	6772 cub. ft.	3481 cubic ft.
Working pressure,	90 lbs.	120 lbs.
Working speed per hour,	12 miles,	18 miles.
Usual load up 45 ft. grade,	30 cars, 420 tons,	13 cars, 208 tons.
Greatest load up 45 feet.	44 " 616 "	
Usual load up 83 ft. grade,	18 " 252 "	9 " 144 "
Greatest load up 83 feet,	27 " 378 "	
Usual load up 116 ft. grade	8 " 112 "	No grade of 116 ft.
Greatest load up 116 feet.	12 " 168 "	" " "
Estimated load on a level, with 75 lbs. steam on piston,	1,385 tons.	711 tons.
Cost of engine	$9,750	$8,000
Average cost of repairs, 1852,	$709	$817
" " " 1853,	$1,236	$1,068

It remains to consider the expense of heavy against light engines. There are many advantages in the carriage of maximum trains which do not affect the wear or expenses of the engine.

Only one engine man is required for any engine; and the only difference in expense of fireman is a slight addition to the wages of a person firing a large engine. Only one conductor is required for a train of any length, while whatever be the length of the train, one brakeman is required on the *last* car. A brakeman can control more brakes in a long than in a short train. Again, frequent trains involve numerous turnouts, and require more switchmen. And trains of whatever length, separated only by short intervals of time, are more subject to accidents on that account. All these, and some other incidental advantages are in favor of heavy engines and long trains.

The *effect* of heavy engines may be injurious from two causes. First, the rails and general superstructure may be too light, in which case their limit of economical resistance is exceeded. Second, the weight of the engine, even if not absolutely great, may be so concentrated upon a few wheels, say two or four, as to produce the effect of the cause first named.

The fact that much of the iron in use on New England roads, and upon steep grades, is not over 56 lbs. weight to the yard, has prevented the use of heavy engines upon such roads. The effects of heavy engines, aggravated by an improper distribution of their weight, when tried upon such roads, have created a prejudice against their use.

The second cause, that of the concentration of weight, often to the amount of 14,000 lbs. on a single wheel, has operated to crush the tracks of the English roads, by which the greatest concern has been caused for the success of railway investments in England.

It is the insufficient strength of the rails, and the insufficient distribution of weight, together with the limits imposed by the "inside connection," that have prevented the adoption of heavier engines on New England roads.

But one very fruitful cause of the rapid destruction of iron, especially where heavy engines are used, and on grades, is the inferior quality of much of the imported stock. The greatest number of failures occur from lamination or splitting.

The committee of investigation appointed to examine the condition of the finances and of the establishment of the Reading Railroad in 1846, give the following account of the manner of failure of a random lot of rails which had been removed from the track.

Of 209 bars, were split.		153
Spread, flattened or crushed at the end		10
" " "	one foot from end..	5
" " "	two "	8
" " "	three "	7
" " "	four "	6
" " "	five "	8
" " "	six "	2
" " "	in the center	10
Total		209

In 1845 the whole renewal of iron amounted to 295 bars of the 60 lb. rail, and 111 bars of the light rail. The causes of the removal of this iron, as stated by the engineer, John H. Osborne, at that time, were as follows:

Of the 295 bars of 60 lb. iron,
1 was bent by a land slide, (could be straightened)
285 were *split*, showing imperfect manufacture.
9 were crushed.

295 Total.

Of the 111 bars of light rails,
3 were rendered useless,
47 were by land slides and accidents,
61 were unfit for main line but fit for sidings.

111 Total.

The following table, from the last Report of the Reading Railroad Company, shows the per centage of wear of different kinds of iron for a series of years.

Old 52 lb. English rail, light track;
Average of 1848 and 49.....1 4-10 per cent.
" 1850.....1 3-10 "
" 1851.....2 6-10 "
" 1852.....3 2-10 "
" 1853.....4 5-10 "

Old 45 lb. English rail, light track,
Average of '48 and '49.....1 3-10 per cent.
" 1850.....1 4-10 "
" 1851.....1 9-10 "
" 1852.....2 1-10 "
" 1853.....3 6-10 "

All the rails named below are in the heavy, or down track, used only by loaded coal trains.

Old 60 lb. English rail, average 48 and 49, 6 2-10
1850....8 3-10 1852....12
1851....9 4-83 1853....12 7-10

American rail "Phœnix" pattern,
60 lbs. per yard, average '48 and '49 7-10 per ct.
1850....4 8-10 per cent. 1852....5 9-10* "
1851....6 3-10 " 1853....6 3-10* "

American rail "Danville" pattern, 60 lbs. per yard
1851 1 7-10 per cent.
1852 6 1-10 "
1853 8 2-10 "

Several inferior patterns called "Erie,"
1850....14 8-10 per cent. 1852....14 2-10 per ct.
1851....17 8-10 " 1853....17 3-10 "

The "Erie," pattern is of English manufacture.
Winslow compound rail, 1852 3 4-10 per cent.
1853 14 2-10 "

Another important cause of the destruction of iron is the unnecessary speed at which freight trains are often run. The New England engine is proportioned and adapted for a higher speed than the Baltimore engine, and if enlarged in size, with its present proportions, would be still more destructive to the iron. The New England engines, being proportioned more for speed than power, are less able to control their trains on descending grades, and thereby run, often times, at excessive speeds, say 40 or 50 miles per hour. It is the great power of the Baltimore engines that enables them to ascend grades faster and descend slower than the New England engines.

With rails of from 60 to 70 lbs. per yard, made, as they should be, from American iron, and with six or eight-driver engines at moderate speeds, the wear of rails might be very much reduced, even with engines of thirty-two tons weight. It is in the province of the motive power department to provide for the distribution of weight and to limit the speeds of freight trains, both of which requisites would prolong the life of railroad iron and superstructure.

In speaking of the condition of the tracks of the Reading road which had then borne the transport of 1,300,000 tons of coal, the committee of investigation, (John Davis, Robert Schuyler, Amos Binney and Wm. Raymond Lee,) say as follows:

"Trains of great weight, making in the aggregate an immense tonnage, have been drawn over these rails by engines of great weight and power at a speed of fourteen miles an hour, and the rails, even the lightest, are yet in a good condition. The weight, *to be* transported will be greater by far than that to be borne on any other railroad in the country, and the wear and tear of the road, otherwise expensive by reason of its numerous bridges, will be in proportion to its business. But we entertain the opinion that by the use of *engines of uniform and great weight*, and of trains of a maximum length, and by having an ample supply of engines and coal wagons, the company will be able to reduce the speed of its trains to less than eight miles per hour, and that this reduction of speed will compensate in a great degree for the wear occasioned by the greater weight of the trains."

The wear of heavy engines upon their own parts depends far more upon the number of those parts and the miles run than upon their size.

This principle is well sustained by the experience of the Baltimore and Ohio company at the time of their adoption of the present class of heavy engines. The twenty-first annual report of that company, for the year 1846, says:

"The whole amount charged to repairs of engines for the past year is, $74,139 51—from which must be deducted $3,119 28—for increase in stock of materials and duplicate parts of machinery—and the nett amount, showing the actual outlay for the maintenance of the engines, is $71,020 23. This is greater than the corresponding amount for the preceding year by $14,969 06—and the increase is sufficiently accounted for by the addition to the number of the engines and the work done by them. The average number at work during the year 1846 was equivalent to 53½ of the fourth class, and during the year 1847 was equivalent to 74. Consequently the number of engines is greater by 39 per cent. The duty in tons and passengers carried one mile is also *greater by* 65 *per cent*, while the *increase in repairs is but* 27 *per cent.* During the past year the "improvements" in the engines were about equal in value to those which took place during the previous year and amounted to some $10,500."

The cost of repairs per mile and per ton per mile has been nearly as follows for the several classes:

Class.	Cents per mile run.	Cent per mile per ton drawn.
1st	11.97	.1696
2d	7.18	.1512
3d	7.22	.3506
4th	8.07	.3573
General average for all classes,	8.78	.2505

In this exhibit, the second class engine appears to have the advantage of the first, which, in its turn, has greatly the advantage of the third and fourth. The comparison is not, however, a fair one, as between the first and second. As the only two second class engines in the service have been but a year at work, while the 13 first class engines have been an average of not less than two years upon the road, and have labored under some imperfections, in their smaller parts, which have now been remedied. But for these circumstances, and also, in a measure, the state of the road upon which the engines have run, and to the fact that the first class engines have been worked much harder than the second, it is not doubted that the economy of the first class, in repairs, would have been considerably greater than that of the second.

The general average cost of repairs and renewals of all classes of engines, upon both roads, has been 10.14 cents per mile, and .3097 of a cent per ton per mile. In the preceding fiscal year, ending Sept. 30th, 1846, the general result upon the *Main Stem* was 8.4 cents per mile run, and .3270 of a cent per mile per ton carried, against 8.78 cents and .2505 cents in the year just ended; the increase of cost per mile run being but 4½ per cent., and the decrease of the cost of the real duty performed being 23½ per cent. *This comparison simply shows how much more rapidly the useful effect of the motive power increases than the cost of obtaining that increase.*"

The following was the classification of engines then adopted, as found in the report for 1846.

The whole number of engines belonging to the company is, at this date, 49; divided into four classes, according to their weight and power—there are of the

Class.	Tons.	Wheels.	Rated at.
1st.	23	8 all drivers, 13,	39 of 4th class.
2d.	16¼	8, 6, all drivers, 2,	4 "
3d.	15	8, 4 drivers, 12,	18 "
4th.	10	6, 4, 2 and 4 do, 22,	22 "

The principal cause for increased wear by adding more wheels to an engine, to effect a proper distribution of weight, would be the increased number of tires. But as the Baltimore and Ohio company had commenced the use of cast iron, chilled slip tires, this item of cost was at once measurably reduced. This improvement is now estimated by the master of machinery to save the road $30,000 yearly on a stock of about 200 locomotives.

It will be seen, however, by the comparison made between the Baltimore and Ohio and the Western railroad engines, that the average cost of each of the former was but little greater in 1852 and 1853 than for the latter. The Baltimore engines now weigh about 27 tons, and are adapted to burn coal, which involves increased expense for repairs. Since 1846, also, these engines have commenced work on the high summits of the Alleghanies and on the 116 feet grades. The expense for engine repairs on this road, in 1853, was made much greater than usual owing to causes of an extraordinary nature.

The next important inquiry is into the consumption of fuel of engines of each class.

The consumption of fuel by any engine depends upon the amount of water that can be evaporated in its boiler by a given quantity of fuel, and also upon the proportion of steam generated to that economically expended. In theory the consumption of fuel would be exactly in proportion to the expenditure of steam of a given pressure. That is, one engine having cylinders of twice the capacity of another, and working under the same pressure, would consume twice the fuel. But in practice this is far from being a correct result. There are numerous and important sources of loss of fuel, which must remain proportionate to the number of engines rather than to their size.

The amount of fuel consumed in getting up steam, in waiting at stations; the amount lost by leakages, or by dissipation under the grate bars or which is dissipated without effect when the door is opened for firing, or which may be dissipated from an imperfect draught, and more than all, the fuel lost by injudicious firing, all are nearly in proportion to the number of engines, without regard to their size. This conclusion is strikingly confirmed in practice, upon the Baltimore and Ohio road, as the following communication will show

* Including new iron laid during the year.

OFFICE MASTER OF MACHINERY,
Baltimore and Ohio Railroad Co.
February 15, 1854.

ZERAH COLBURN, ESQ., Engineer,

SIR,—Yours of the 8th inst. came duly to hand, and in reply to your inquiry, would state, that after a series of experiments, with different locomotive engines, on our road, we find, that the "practical proportion of the consumption of fuel, and water, follows the expenditure of steam" in the following proportion.—The engines working under similar circumstances of steam pressure, &c.:

"Engine No 72," with 20x22 inch. cylinder, requires 885-1000 of a pound of coal per gallon of water.

"Engine No. 102," with 19x22 inch cylinder, requires 1 3-100 pounds of coal per gallon of water.

"Engine No. 76," with 17x22 inch. cylinder, requires 1 3-10 pounds of coal per gallon of water.

We have no practical means of testing whether an "Engine of a given colinder capacity, will consume *twice* the amount of wood and water, of another of half the capacity, under similar circumstances." But my impression is, from the above result, that the larger cylinder would use less than double the amount of wood and water.

Very truly yours,
S. J. HAYES,
Master of Machinery.

Beyond the greater efficiency of fuel in *generating* steam in a large than in a small boiler, there is an increased effect derived from *using* steam of a given pressure in a large engine, compared with a smaller one. This comes from the fact that the resistance of the pipes, ports and blast openings, is relatively less, but principally because the condensation of steam in the cylinders and the loss by priming is relatively much less.

Notwithstanding the fact that theory would indicate a consumption of fuel proportionate to the power exerted, it is probable in practice that one engine exerting twice the power of another, could be run with not above fifty per cent. more fuel. This I should state as a general result, in view of the best means of information, and as applicable to the present construction and method of working engines.

It is interesting to trace the gradual reduction in the cost of carrying coal over the Reading Road, consequent upon the adoption of heavy engines, and the running of maximum trains at slow speed.

The cost per ton carried in 1844 was 41 8-10 cents., but the engineer, in view of the recent adoption of first class (first class *then*) engines, said "the greatly increased power of the new engines (their load exceeding the average of 1843, 218 tons) combined with the expected economy in the use of iron cars, (both of which were placed on the road late in the season,) will reduce the cost of transporting coal during the coming year to between 35 and 38 cents per ton."

That these anticipations were realized is seen in the next report. In 1845 the expense was 37 1-10 cents per ton, a reduction of 4 7-10 cents. over the previous year. The engineer then said "This decrease in cost of hauling, of 4 7-10 cents. per ton, (or $38,271 11 on the years business,) has been chiefly effected by the addition of the first class engines put upon the road during the past year, and the very satisfactory working of these excellent machines. Their power, economy of repairs, ease to the track, and general efficiency have fully equalled the anticipations which induced their order and purchase. By their use, the average load of the past year has been 295 tons of coal, for all engines, an increase of 101 tons of coal per train, compared with the business of 1844."

In view of these flattering results a belief was expressed that the working of the engines would show a still further reduction in the coming year to 33 cents per ton. In 1846, however, a heavy rise in labor and on wood, occurred, sufficient of itself to increase the cost of hauling *two cents. per ton*; while from increased cost of car repairs, and other charges wholly independent of the size or weight of the engines, the cost was 38 and 89-100th cents. per ton. Had there been no rise in fuel and materials, nor in labor, this would not have exceeded 36½ cents, a reduction on the cost of the previous year. One important cause of the increase, however, was a temporary suspension of business during the season, caused by a severe freshet; and also ths falling off in the demand for coal at a later period in the season.

In 1847, an increase of the cost of fuel, labor and materials, with an unusual expense for contingencies, raised the cost to 45 84-100 cent. per ton.

The same causes continuing in 1848, the cost was 45½ cents per ton. In 1849, under nearly the same circumstances, the cost was 43⅝ cents per ton. The expenses of coal cars this year were very heavy.

In 1850, without any sensible change in the character of motive power, but under still higher prices for fuel and labor than before, the cost was 41 cents. per ton.

In 1852, under about the same circumstances as in 1850, but by a considerable use of anthracite fuel, the cost was reduced to 35. 36 cents. per ton.

In 1853, with average trains of greater weight than in any previous year, viz., 392 tons of coal, and with the use of anthracite the cost was 32. 49 cents per ton. With lighter engines, burning wood; the cost was 38. 97 cents. per ton.

The power of the engines of the Reading road appears to have been increased about 30 per cent. since 1846. The amount of wood, oil and waste consumed, and labor employed is *less* in *amount, now* than *then*, but is about 30 per cent. higher in *price*. The Repairs of engines cost at least 50 per cent more now than then, chiefly by reason of a great increase in the prices of labor and materials, and to the effects of *burning* anthracite coal, probably less than 10 per cent. of the increased cost being due to the increased size.

Here we see that the Reading Railroad, having grades the most favorable possible for its immense business, has been gradually increasing the capacity of its engines ever since it commenced business. It is now using engines of over 60,000 lbs. weight, carrying in many cases loads of 900 or 1000 tons weight, and averaging nearly 400 tons of coal per train throughout the year.

The Baltimore and Ohio road have been doing the same thing. Although the average load of their coal trains was only about 100 tons, in 1853, (limited by adverse grades) yet from the cheapness of their fuel, their economy of making repairs, and from having no "drawbacks," "dumpages," "premiums," or other outside charges to pay, they are carrying coal for less, per ton per mile, than the Reading road, with all its advantages of grades.

That the Western road can yet practice an important means of economy, by improving the construction of its engines, there cannot appear a reasonable doubt.

The means of increasing the capacity of its engines are by throwing overboard the truck frame and substituting driving wheels in place; by which the power of the engines would be increased and a better distribution of the weight effected. The boiler and cylinders should be enlarged, and the wheels reduced in size; by which more power would be had, and at a lower speed And in doing this the railroad managers of New England must come boldly up and adopt the improvements which more enterprizing managers than themselves have made. There is a popular sentiment which demands improvement, and it is certain that every real improvement will be adopted in practice, no matter who is jealous, or prejudiced, or adversely interested.

It is undeniable that important improvements have been made in locomotives, not only since their first adoption, but within the last few years. It is equally undeniable that New England companies have been the slowest to adopt them; and have not recognised many of them, even yet. It is undeniable also, that the general interests and the railroad interests of New England suffer from the absence of these improvements, by which the efficiency of motive power is diminished, and the relative cost thereby increased.

The Western road has, I believe, renounced the purchase of the inside connected engine. It is a good move, but one which many other roads never had to make, while most others out of New England, made it long ago. This arrangement at one time might reasonably claim to possess intrinsic merits. But its demerits are now obvious enough; and yet, a few railroad men are still impressed with a belief that it is the best because it has been sustained longest in *New England*. The crank engine is a heavier, more clumsy and unsafe, and a less efficient and economical plan than the outside connection. But its worst feature has always been that it imposed limits to any sensible increase of the capacity of the engine, and that it prevented a proper coupling of the wheels. The Balti more and Ohio Company well know, at least their principal officers do, that their 20 inch cylinder engines, built by themselves, are much more economical and efficient than any of their others. (These 20 inch cylinder engines, I have not made the subjects of comparison, however, with the equipment of the Western road.) But where could room be found with the inside conection for a 20 inch cylinder and 22 inch stroke? Which pair of wheels could it attach to the piston? The engine would not be practicable upon the narrow gauge.

I might have shown, in most minute detail, all of the advantages of powerful engines, especially upon undulating roads. But, besides that my own engagements do not now permit of my elaborating this principle to the extent which I have already done, in many of my previous articles; and which I shall yet do in another connection, when I have the time properly to address

myself to the task,—besides this, I am conscious that the larger part of my readers appreciate these advantages already. I do not look upon what I propose for Massachusetts róads as an experiment, for it has had the confirmation of years' of intelligent experience. I only contend for an *application*. I *would not* propose the identical engine now used by any road; but the fundamental principles embraced in the system of motive power of the Baltimore and Ohio, and the Reading Roads, have proved their value enough to command the attention of managers in New England.

The great principle to be preserved is the adaptation of power. This requires a practical sense of the resistance of grades, such as railroad men do not always possess. They have not perhaps, troubled themselves with first principles, and when they see the engine start a monstrous train, equal to its full power, on a *level*, they will not understand that *but one half* as much could be carried up a grade of 22 or 25 feet per mile, or a rate of inclination hardly perceptible to the eye. But so it is. Let us see what would be required in the way of motive power to take a train of 711 tons on a level and up different grades, say to 60 feet; the performance on each grade to be with the same steam pressure and at the same velocity.

Grade.	Resistance, lbs.	Cylinder, inches.	Stroke, inches	Driver inches.
Level.	7,111	16	20	54
20 feet,	12,800	18	22	48
40 "	18,800	21	24	42
60 "	24,900	24	26	44

For trains of less than 711 tons, on a level, or an descending grades; the Reading company use an engine nearly as powerful as is designated for a 20 feet grade. This they do in order to have a surplus of power under all circumstances, and to enable them to work steam expansively. But allowing a 16 inch cylinder, 20 inch stroke and 4½ feet wheel for a level road. An engine to pull the same load on a 60 feet grade only, would require to be of 24 inch cylinder, 26 inches stroke and but 44 inch wheel! To what an extreme would the principle lead us. Is it proper then to stick to the light engine for even an 83 feet grade? Is it proper to surrender a portion of our load at every increased rise, and to draw little more than the weight of engine and tender up the steeper grades.

Adapt the engines. Remember that as the load diminishes the gravity increases, and that when the whole load of perhaps 100 tons is barely moved up the grade, the eight tons *upon the engine truck*, neither adds to the useful power of the engine, nor is it any part of the productive load. It is so much *drag*, equal to one half of a loaded car.

Adapt the engines. If a 21 inch cylinder and 24 inch stroke be admissable upon an engine, remember there is the same reason for adopting it on a 40 feet grade, that exists for the use of a 16 by 20 inch cylinder on a level.

It is an important step to know the limit of size of a engine upon the narrow gauge. For a freight engine a cylinder of 21 by 24 inches is easily attained; so is a boiler of 54 inches diameter and 14 feet long; a grate 48 inches wide and 7 feet long if necessary. Engines of 35 tons weight are perfectly practicable if there is necessity for their use and as to the latter point there certainly is necessity, if they have proportionate resistances to encounter.

To show *how* engines of a size, greater than those in present use, can be made, is nothing very difficult for any mechanic. I think, however, that I have shown *why* they should be so made, in some cases, and if so I have attained my object in the present essay.

Journal of Railroad Law.

RAILROAD SUBSCRIPTIONS.

When will they be rescinded as having been fraudulently procured? When the false statement or the suppression of truth of which the aggrieved shareholder complains is of such a character as to materially concern the intrinsic character of the road to which they relate. It is not *eveoy* misrepresentation or concealment which will be sufficient to annul a subscription. Redress in such cases may be often found by holding the managers of companies to a strict accountability.

The case of *Pulsford vs. Richards*, 19th Eng. Law and Chanc. Reports, p. 381, was an application to the Court of Chancery based upon the following facts.

Upon the establishment of the West Flanders Railway Company, a person named Chantnell, who had been instrumental in forming the company and in procuring grants in reference to the same from the Belgian government, obtained from the directors an agreement to pay him a large per centage upon the capital of the company, had allotted to him 4000 shares of stoch, and guaranteed to him £500 a year as a permanent salary, as general superintendent of the road. The directors also allotted to themselves 20,000 shares of the company's stock, and 10,000 shares for themselves and the shareholders of the Sambre and Mense Railway, of which they were also the directors. In the public Prospectus of the company inviting subscriptions, these facts were suppressed, although it was stated that the directors had reserved a commission of £3 per cent on the capital, as a mode of reimbursing themselves for their time, trouble and outlays.

The petitioner in this case prayed the court that he might be relieved of the shares of the West Flanders Railway Co., for which he had subscribed and be re-paid the amount of his deposit money and calls.

But the Master of the Rolls held that the omission in stating facts complained of in the case in question was not of such a nature as should entitle the stock subscribers *to* be relieved in accordance with their petition.

The Master observed, in substance, that Mr. Chatnell's duties must mave been performed by some one, superintending the expenditures of money, ascertaining the owners of land and nogotiations relating to the road with the government and with individuals were very essential and imimportant duties. Mr. Chantnell seems to have been peculiarly fitted for the duties which he undertook to perform. It was the duty of the directors to procure some such agent at a fair compensation for his services. No evidence had been produced to show what was a fair compensation for services like those of Mr. Chantnell would be. But suppose the remuneration allowed to him to be exorbitant, silence in respect to it would not be a good reason for annulling stock subscriptions.

It was not a suppression of the facts which affected the intrinsic value of the undertaking. That would depend upon the population and business of the country traversed by the road—the difficulties of construction—the cost of the land required and the like.

The extravagance of railway directors is a question between them and the stockholders, to be adjusted at their settlement of mutual accounts, but does not furnish adequate ground for annulling contracts with shareholders. Both before and after the establishment of a line, directors must contract in relation to it at fair and honorable prices, or they become individually responsible. If indeed the directors had permanently encumbered the road, for example, by a rental to the Belgian government the case would have been different. But certain expenses are incuitable in the formation of companies. The bill was dismissed with costs.

MERCHANDIZE NOT LUGGAGE.

In the lately issued volume of the English Exchequer Reports is contained the case of the *Great Northern Railway Company, Appellants, vs. Shepherd, Appellee*, which in part indeed, is only a reiteration of the settled doctrine of our own Courts, but which yet presents some novel points, appertaining to the Law of Common Carriers.

The plaintiff below brought an action to recover damages amounting to about £40 for the loss of ivory knife-handles, books, carpet-bag, &c. He was a cutler living in Sheffield, and with his wife, bought third class tickets of the Great Northern Railway Company from that place to London. When there he purchased a quantity of knife-handles to be used in his business, and returned on the same day. His goods were contained in a deal box, in two brown paper parcels, all marked with his address. Each third class passenger was allowed 56 lbs. of luggage. The plaintiff on entering the return train placed his box in the luggage car, and the other articles under his seat in the passenger car, and in so disposing of his property received no help from the porters of the train. At Bedford it was necessary to change cars, and to wait an hour for another train. On this occasion too, the plaintiff, below, took the sole charge of his goods without receiving any aid whatever from the employees of the Company. There was no guard to give warning in case of interfering trains, and consequently a collision took place, by which the plaintiff, below, was injured, and it became necessary to transfer him to another car. While changing his car, he spoke to the Railway porter about his box, &c., and was informed that they should all be duly cared for. The box was found, but the other articles were not.

Several questions were upon the appeal submitted to the Court.

1st. It being conceded that most of the articles lost were to be used by their owner in the manufacture of cutlery, and were not personal luggage, was the Company liable for their value?

2d. Was not the Company exonerated from liability by the fact that the luggage or goods of the plaintiff, below, exceeded 112 lbs., the weight limited in England by law?

3d. Were not the goods to be regarded as retained by their owner in his own custody and possession?

4th. Was not a new contract made with the owner of the goods at the moment of changing cars after a collision?

The Appellate decided,

1st. That if a passenger so packs his merchandize, that it passes for mere luggage, and the carrier has no notice that it is merchandize, he is not responsible for its loss. The contrary is true if the carrier knows what the true character of the goods is, and consents to receive and transport them. And luggage is only what is ordinarily carried for traveling purposes, with perhaps a book or two for amusement or presents.

The American Courts have substantially decided in like manner. See 26 vol. American Railroad Journal, p. 515, ib 765, ib 299, ib 68. Also 9 Wendell's Reports 85; Orange County Bank vs. Brown.

2d. That where the limited amount of luggage for each Railway passenger is 56 lbs. and a husband and wife are traveling in company under circumstances to which that limitation is applicable, the baggage of either party may exceed that amount, provided the luggage of the two together does not in the aggregate weigh over 112 lbs. It would, indeed, be often inconvenient to sort out and carry separately the traveling conveniencies of such, usually confidential companions.

3d. Although the luggage of a passenger is not delivered to any servant of the Company, the law regards it as being in the custody of the Company, and holds them accountable for the same. The passenger pays for the safe transportation of himself and luggage.

4th. In the case above stated, no *new* special contract was made between the parties at the time of changing cars, but the Railway porter simply recognized the general liability of the Company.

North Missouri Railroad.

The following gentlemen have been elected Directors of the North Missouri Railroad for the current year: Col. John O'Fallon, Thos. T. January, James T. Sweringen, Gerard B. Allen, A. Krekel, Calvin Case, Lewis Bissell, John D. Coalter, Robert M. Renick, John Hartnett, Andrew Harper, Carlos S. Greeley, Isaac A. Sturgeon.

Newport and Louisville Branch Railroad.

At the last session of the Kentucky Legislature, an act was passed to incorporate the Newport and Louisville Branch Railroad Company. This is a very important enterprise. Newport and Covington are towns in Kentucky, lying opposite to Cincinnati, through one or the other of which, all roads approaching Cincinnati from the South, must pass. It is a singular fact that although Cincinnati is the radiating point for a vast web of railroads, connecting her with the East with the Lakes, with Indiana, and with St. Louis and Chicago, she has no southern connections through Kentucky, except the Covington and Lexington Railroad, which is in progress. And this is the more surprising as the intercourse between Cincinnati and Louisville is immense, giving now full employment to two regular daily lines of steam packet boats of the largest class, besides numerous transient boats; and the vast travel from points still further south, would also be thrown into this channel if a railroad was in existence—especially during the season of low water.

Two or three years ago, a charter was granted for a railroad from Covington to Louisville, but the organization of the company, as well as the location of the road, were considered objectionable by the capitalists both of Louisville and Cincinnati, and the stock has not been taken.

The Newport road, chartered last winter is to connect with the Louisville and Frankfort Railroad, at or near Eminence, about thirty miles from Louisville, and to run thence to Newport, about 70 miles, making the whole distance about 100 miles. This is about the length of the other road—the Newport road having the advantage, if it be one, of having only seventy miles to make.

There is no railroad in the United States, made or projected, which offers better prospects for profitable investment than this. It will be laid upon the shortest and best route, between two populous and flourishing cities, having a vast and rapidly increasing commercial and social intercourse with each other, and being in the direct line of an immense stream of trade and travel, from points beyond those cities. The distance between Louisville and Cincinnati is a Thermopoly which few travelers find it convenient to avoid in passing through the West, from North to South.

At Louisville, this road will have the advantage of the entrance into the heart of the city, and the use of extensive depot-grounds, in consequence of its connection with the Louisville and Frankfort Railroad—an advantage worth several hundred thousand dollars; and at Newport it will, through the liberality of property owners, have the right of way and depot grounds ceded to it on the most easy terms. The depot will be on the bank of the Ohio, immediately opposite to that of the Little Miami Railroad, which is also on the river bank, within the business part of the city, and near the steamboat landing. The connection with the Little Miami Road, which inevitably follows the making of the road, must be of obvious advantage, that being the oldest railroad in Ohio, well made, in fine order, with valuable connections prosperous business, and high credit, while even that road will be fortunate in a connection which will probably more than double its business.

We are happy to be able to say that this valuable road, is in hands which will not allow the enterprise to sleep. J. H.

Michigan Southern and Indiana Northern Railroad.

We give below the circular of this Company stating the determination of the directors to issue a certain amount of *New Stock* for the purpose of providing means for the prosecution of the unfinished works of the company. Of the *propriety* of raising money by a sale of stock in preference to sale of bonds, the directors are the best judges. There is no question that the course adopted will readily produce the amount required. The route of the above road is second to none in the United States, connecting as it does, by the shortest line, the southern shores of Lake Erie and Michigan, around which travel going east or west must always pass. A prolongation of this line in the same general direction, to the Mississippi river on the one hand, and the Atlantic on the other, may be regarded as identical with the *axis* of the commercial system of this country; the focal point toward which every part of it tends.

Office of the Michigan Southern and Northern Indiana Rail-Road Companies,
No. 18 William-Street, New York April 6th 1854

SIR, We hand you herewith a copy of Resolutions adopted by these Companies, providing for an increase of stock for the purpose of completing the Goshen line and the Jackson Branch, and for a distribution of the same among the stockholders.

As this increase has not been heretofore contemplated, and as it deviates from the plan originally adopted by these Companies for the construction of these lines, it is proper briefly to explain the reasons for it.

Acting upon the policy long since settled by the Board of Directors, and steadily adhered to, that no Convertible Bonds should be issued for the construction of the work under their charge, they had proposed to provide the means for the completion of the lines now in progress, by an issue of stock for a portion of the cost, and of Mortgage Bonds for the remainder.

The stock was accordingly issued and distributed among the stockholders last season; and the Bonds were prepared for sale whenever the Company should require the proceeds. In the m antime the entire work has been put under contract; the Iron and Equipment all purchased, and every preparation made for bringing the lines into use by the close of the current year.

The present moment, however, is very unfavorable for ralizing from sales of the Mortgage Bonds; and the Directors feel that the prices which those securities would now command in the market are not such as the interests of the shareholders would justify them in accepting. They have, therefore, determined to make a further issue of stock to the amount of 25 per cent. upon the existing stock, and to distribute the same *pro rata* among the stockholders at par, in the manner and on the terms specified in the annexed resolutions.

All the stockholders of both Companies, including the holders of "Construction Stock," are entitled to their proportion of this new issue,—the last payment for which (as will be perceived by the resolution) falls due on the 1st July next,—interest at 7 per cent. per annum being allowed to that time on instalments paid, after which date the stock will be entitled to full dividends.

Stockholders residing in Europe or elsewhere out of the United States, will be allowed thirty days additional time to make payment of the first instalment; but the entire payment must be completed by the day stated. Agents are requested to notify their correspondents accordingly.

Believing this arrangement to be one which will promote the best interests of the Companies, and of the shareholders, the Directors invite their cordial co-operation in carrying it into effect.

We avail ourselves of this oportunity to congratulate the stockholders upon the very great increase in the business of the roads, as indicated by the earnings for the first quarter of the present year, which amount to $331,417 against $196,234 for the corresponding period last year,—an increase nearly equal to 70 per cent.

The total earnings for 1853 were $1,573,180. Should an increase proportionate to that above stated, be maintained for the remainder of this year, the total earnings for 1854 from the completed portions of the roads, will reach an amount considerably exceeding $2,000,000. In any event, we feel sure that the net earnings from our line will be ample to redeem all the promises of profit which we have held out to the stockholders.

John B. Jervis, President.
Edwin C. Litchfield, Treasurer.

[Resolution refered to in preceding circular.]

At a Meeting of the Directors of the Michigan Southern and Northern Indiana Rail-Road Companies, held at their Office in New-York, the 4th day of April, 1854, it was.

Resolved, That a new issue, of stock be made, equal to 25 per cent. upon the amount of all existing stock of the Michigan Southern and Northern Indiana Rail-Road Companies; that the same be issued in the proportions of three shares of Northern Indiana to one share of Michigan Southern Rail-Road stock; that the same be distributed equally among all the stockholders of both Companies who shall be such on the morning of the first day of May next, in proportion to the amount of stock then held by them respectively; that said stock be issued to the stockholders at par, and the

payment for the same required to be made at the Office of the Company, in the City of New-York, as follows: 25 per cent. on the 10th day of June; and the balance on the 1st day of July next; with liberty to any stockholder to pay faster or in full previous to said dates; that interest upon said payments be allowed at the rate of seven per cent. per annum until the 1st day of July; on and after which date stockholders who have paid as aforesaid will receive certificates of said stock, which will be thereafter entitled to receive full dividends equal to any of the existing stock. Stockholders who do not signify their intention to take their proportion of stock by making the payments thereon as required, will be deemed to have forfeited their right to the same. Parties entitled to fractions of a share will be allowed to make the same full.

RESOLVED, That the President and Treasurer cause a Circular to be issued to the stockholders, informing them of the proposed issue of new stock, and the terms thereof, as specified in the preceding Resolution, and such public notice to be given of the same as they may deem proper.

Railway Extension of the Trade of Montreal.

The sagacity of those citizens of Portland and Montreal, who first undertook the construction of the existing railway between these cities, is now beginning to be appreciated. Added to the several lines of Canadian Atlantic Steamers, this road gives to our city the advantage of a seaport during the whole that season in which nature seemed to our ancestors to set an icy seal, impossible to be opened, on the operations of commerce, and the other larger intercommunications of mankind. But while we begin to form some idea of the truth, we shall not measure accurately the whole of the benefits to be derived from this great basis of trade, till the dependant lines of railway have been pushed backwards, not only to the extremity or our own borders, but to the feet of the Rocky Mountains Even then some gorge must be sought out— some "notch" or waterworn track discovered, by which a passage may be opened to the locomotive from the eastern to the western slopes of the Great Western range, before our career towards the setting sun will be accomplished. In short, between the enterprise of our own railway potentates and those of our neighbors in the Western States, Montreal must shortly be a principal stage on tbe high road between the Atlantic and the Pacific, and practically the wharehouse for a vast Atlantic seaport, whose wharves will not be confined to the beaches of one city, but will be divided among the three cities of Quebec, Montreal and Portland.

The special circumstance that brings the subject under our notice, and, through our mediation to the notice of our readers, is the reception by us of a manuscript report, not yet printed, but just presented by Mr. Walter Shanly, well known as a Canadian Engineer, to the Directors of the Port Huron and Lake Michigan Railroad Company. The object of this Company, it may be shortly stated, is to cross the State of Michigan in a line which shall be the extension of our own Grand Trunk, westward from its termination at Port Sarnia. It may not be uninteresting to Canadians, who feel pride in believing their countrymen equel to any enterprise, to learn at once, that not only the survey for this project has been made by a fellow countryman, but that the whole work has been contracted for by the Canadian firm of Holton, McPherson, Galt and Gzowski.

The whole distance thus brought into the most direct communication with this city is westward to Prairie du Chien, nine hundred and fifty-eight miles, eastward to Portland two hundred and ninety; in all twelve hundred and forty-eight. The distance is thus divided, viz: Prarie du Chien to Milwaukie, 160 miles; Milwaukie per steamer to Grand Haven, 85 mile; Grand Haven to Port Sarnia, 202 miles; Port Sarnia to Toronto, 168 miles; Montreal to Portland, 290; or to Quebec 180.

The great success of the existing roads through Michigan—not the result of a trade built up after many years exertion—but springing, spontaneously from beneath the locomotive, shows the wonderful adaptation of those fruitful regions to almost unlimited progress, and the imperative necessity for the seaboard to be connected with them to order to partake in its own degree of their prosperity. We regard this extension of our main arteral communication on the other side of Lake Huron, as essentially a Montreal road, as if it were to be construction where its terminus could be reached in a quarter of an hour's drive from the French Church.—*Montreal Herald.*

Public Lands of the United States

In the minority report of the Committee on public Lands, made a few days ago to Congress, it is set forth that an official statement from the Commissioner of Public Lands shows that there has been granted to the States and Territories named up to June 30th, 1853, for Railroads, Internal Improvements, Schools and Deaf and Dumb Asylumns, and to States for seats of government, Public Buildings, Corporation, &c., as follows:

	Roilroads, &c. Acres.	*Public Buildings* Acres.
To Ohio.....	1,970,530	8,883.617
To Indiana....	2,283,219	1,792,526
To Illinois.....	4,096,848	2,146,444
To Michigan...	2,363,477	6,974,116
To Wisconsin..	1,934,464	1,350,630
To Iowa.....	2,336.302	121,878
To Missouri...	3,472,391	3.589,751
To Arkansas..	3,623,827	8 865,154
To Louisana...	1,332,124	11,864,180
To Mississippi.	2,097,754	2,514,175
To Alabama...	1,867,232	240,643
To Florida....	1,475,507	5,805,394
To California...	7,265,404	....
To Minnesota..	6,429,244	....
To Oregon.....	12,186,987	....
To New Mexico	7,493'120	....
To Utah.....	6,681,707	....
13 States, 4 Territoriesamt,....	68,913,937	54,148,514
For Railroads, Internal Improvements, &c.....		68,913,937
		113,062,451
Amount sold up to same date...		103,197,356
Amount of grants over the sales.		19,865,095
Add grants for military services.		24,841,980
Amount		44,707,075

Amount of grants and sales.... Acres 252,001,787

Had the lands, says the Report, granted to the States and Territories—123,062,451 acres, been sold at Government price, it would have amounted to $153,848,054. Of this sum Virginia was entitled to millions of dollars.

In one case only of grants to railroads, that of the Illinois Central Railroad, the report shows tbis Company hare received 2,751,711 acres, which, at government price, would amount to $4,689,639.

Lake Superior Copper Mines.

The Lake *Superior Journal* publishess several particulars with regard to the mines in that district, including a statement of copper, iron and silver ores received at Sault Ste. Marie, during the past year, from which we find that the enormous quantity of 1,351 tons 326 pounds was taken from the Cliff mine alone, while the average yield is about 30 tons.

Of 34 Lake Superior copper mines we find that the proprietorship average in shares from six to one hundred thousand dollars. The amount of paid up capital averages about 12 per cent of that sum. The value of the Boston and Pittsburg mine is estimated at by far the largest figure, viz; $870,000, while the lowest is the Iron City mine stated to be worth $30,000. The total value of all the mines is put down at $7,033,300.

The whole amount paid in on the 34 mines of the Lake Superior Coppor region, enumerated above, is equal to $2,120,000. The total value of these mines, is equal to $7,033,300. The amount of copper received from all the mines, up to the opening of navigation in 1854 is estimated at 14,000 tons, equal in value to $4,620,000. The product of the Lake Superior district for the year 1854 will exceed 3,600 tons, which, at the present price of copper, will amount to nearly $2,000,000, or one-third as much as the product of all the English mines.

Milwaukee and Mississippi Railroad.

The earnings of this road continued to show a most gratifying result. The earnings for the first quarter of the year are as follows, viz.:—

1854.		1853.	
January....	$23,224 29	January.....	$10,801 25
February...	26,192 33	February....	8,930 86
March.....	20,698 61	March.....	8,143 35
Total....	$70,115 23	Total.....	$27.875 46

The above exhibits an increase of over 150 per cent. and that, too, when only eighteen miles have been added to the length of the road.

In reference to the future, we copy the following from a statement of the Superintendent and Chief Engineer, recently published in the Milwaukee Sentinel.

"I have thought it proper to say that the road will be in operation to Madison about the first of of June, and that the gross receipts for the year 1854, are estimated at $400,000; and allowing 40 per cent. of the same for the expenses of operating the road, leaves an account of dividends, on a capital of about $2,000,000, $240,000, equal to 12 per cent.

The following are the monthly estimates of business, which give the above result:

January. 1854,....	$23,224 29
February,....	26,192 23
March, ...	20,698 61
April, ...	22,000 00
May,....	25,000 00
June,....	27,000 00
July,....	27,000 00
August,....	30,000 00
September,....	60,000 00
October,....	60,000 00
November,....	44,000 00
December,....	34,884 77
Total,....	$400,000 00

It is hardly necessary to add that if this result is attained, (of which I have not the least doubt, if the crops are a fair average) on a road of which 80 miles is in operaiion for half the year, and 96 for the remaining half, for the first year's business, that it should be in the higest degree satisfactory. Besides that it should settle beyond a doubt that the stock of the M. & M. road will be a ten per cent. stock, under all circumstances and at all times.

EDWARD H. BRODHEAD,
Engineer and Sup't

Tennessee.

COUNTY SUBSCRIPTIONS TO RAILROADS.

The following is a copy of a law, recently passed in Tennessee, regulating the subscription of counties to railroads. It is entitled an act to prevent oppressive county taxes for railroad purposes.

Be it enacted by the General Assembly of the State of Tennessee, That it shall not be lawful for any county in this State, which may have heretofore, or which may hereafter subscribe stock to a railroad company or companies, under any law authorizing such subscription, in the aggregate amounting to more than one-fifteenth of the value of the taxable property of such county; and every subscription of stock made by any county in the State, and every county bond issued in violation of the provisions of this act, is hereby declared null and void as to so much as shall be an excess

of the limit above stated. Provided, that no county in this State, under any existing law, shall subscribe in the whole exceeding one million of dollars, in its corporate name and character, to a railroad company or companies, Provided, that this act shall in no way effect the validity of any county railroad subscription heretofore made, which may exceed the limit prescribed in this act. —Passed Feb. 23d, 1854.

American Railroad Journal.

Saturday, April 22, 1854.

Stock and Money Market.

The share market is not materially changed since our last. The prices have recovered somewhat from the lowest point of their previous depression, but the market is still very heavy. Transactions in bonds are limited to first class securities. Nothing can be done to advantage with *new* loans. The market is still too much under the influence of the news from Europe, to indicate the real value of our own securities.

The earnings of our railroads continue to be very large. The returns of the earnings of fifteen roads for the month of March, show the following aggregate:—

Statement of earnings of railroads for March, as far as heard from:

	1854.	1853.
New York and Erie,	476,316	371,491
Michigan Southern,	149,395	87,144
New York and New Haven,	68,130	60,555
Cleveland and Toledo,	70,784	44,855
Rock Island and Chicago,	74,700	New.
Pennsylvania Central,	486,184	310,955
New York Central,	416,849	324,511
Ohio and Pennsylvania,	81,150	36,743
Cleveland and Pittsburgh,	37,790	31,670
Macon and Western,	34,356	26,592
Milwaukee and Mississippi,	20,698	8,143
Hudson River,	174,240	119,803
Louisville and Frankfort,	22,504	16,989
Muscogee,	13,555	3,061
Indianapolis and Cincinnati,	26,248	New.
	$2,152,899	1,442,520
	1,442,520	
	$710,379	

or nearly 50 per cent.

The above result shows the railroad interest of the country to be in a very healthy condition, and that a very active internal trade exists.

Galena and Chicago Railroad.

This Company have just declared an extraordinary dividend of 20 per cent., payable in *stock*, and are about making an additional issue to the amount of 25 per cent., for the purpose of providing means for the works of the Company in progress. These issues will bring up the capital amount to $4,200,000, as follows:—

Account of outstanding stock, June 1st, 1854	$2,800,000
Add proposed increase of 25 per cent.	700,000
	$3,500,000
Add 20 per cent. dividend	700,000
	$4,200,000

This issuing of new stock, in preference to the sale of bonds, for the purpose of raising money, is certainly a very proper course. We are by no means so clear as to the propriety of dealing extraordinary dividends by a Company whose works are in *progress*. It may turn out that such dividend was paid from *capital* instead of *earnings*.

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net Earnings for last official yr.	Dividend for do.	Price of Shares.
Atlantic and St. Lawrence	Maine.	150	1,538,100	2,973,700	5,973,700	254,743	113,520	none	83
Androscoggin and Kennebec	"	55	824,863	1,043,540	2,036,140	177,003	80,053	none	30
Kennebec and Portland	"	72	1,073,673	1,439,694	2,520,981	168,114	100,552	none	41
Port., Saco and Portsmouth	"	51	1,355,500	123,884	1,459,384	208,669	.....	6	98
York and Cumberland,	"	20	285,747	341,100	713,605	23,946	11,256	none	24
Boston, Concord and Montreal	N. H.	93	1,649,278	622,200	2,540,217	150,538	79,659	none	30
Concord	"	35	1,485,000	none.	1,485,000	305,805	141,836	8	108
Cheshire	"	54	2,078,625	720,900	3,002,094	287,768	55,266	5	37
Northern	"	82	3,016,634	.....	.....	328,782	163,075	5	50
Manchester and Lawrence	"	24	717,543	.....	.....	.....	.....	6	83
Nashua and Lowell	"	15	600,000	none.	651,214	132,545	51,513	8	108½
Portsmouth and Concord	"	47	.....	.....	1,400,000	.....	.....	none	....
Sullivan	"	26	.....	.....	673,500	.....	.....	none	12½
Connecticut and Passumpsic	Vt.	61	1,097,600	550,000	1,745,516	.....	.....	none	26
Rutland	"	120	2,486,000	2,429,100	5,577,467	495,397	266,539	none	9½
Vermont Central	"	117	8,500,000	3,500,000	12,000,000	.....	.....	....	10¾
Vermont and Canada	"	47	1,500,000	.....	1,500,000	Leased to	the Vt. C	ent.	97½
Western Vermont	"	51	392,000	700,000	.....	Recently	opened.	none	....
Vermont Valley	"	24	.....	.....	.....	.....	.....	none	....
Boston and Lowell	Mass.	28	1,830,000	206,190	2,044,536	434,599	114,098	6	90
Boston and Maine	"	83	4,076,974	150,000	4,111,345	803,024	418,358	8	102½
Boston and Providence	"	55	3,160,000	402,326	3,579,041	509,326	226,639	6½	82½
Boston and Worcester	"	69	4,500,000	590,541	4,850,754	887,219	413,289	7	100
Cape Cod branch	"	29	421,950	180,000	633,906	68,942	26,412	5	40
Connecticut River	"	52	1,591,110	286,363	1,802,244	258,220	102,098	4	55
Eastern	"	58	2,850,000	1,192,975	3,120,391	620,810	310,875	6	84
Fall River	"	42	1,050,000	6,208	1,050,000	294,183	126,589	8	95
Fitchburg	"	67	3,540,000	191,500	3,716,870	626,659	214,633	6	88
New Bedford and Taunton	"	20	500,000	none.	529,964	188,442	46,839	7	117
Boston and New York Central	"	74	1,159,228	953,370	2,221,068	90,315	35,214	none	68
Old Colony	"	45	1,964,070	295,038	2,293,534	374,897	122,866	none	94
Taunton Branch	"	11	250,000	none.	307,136	159,738	21,490	8	....
Vermont and Massachusetts	"	77	2,233,939	1,139,615	3,207,818	244,323	13,144	none	16½
Worcester and Nashua	"	46	1,140,000	194,445	1,342,593	182,398	81,807	5	62
Western	"	155	5,150,000	5,319,520	9,953,258	1,525,224	746,736	7	97½
Stonington	R. I.	50	.....	467,700	.....	240,572	110,892	....	69
Providence and Worcester	"	40	1,457,500	300,000	1,791,999	291,417	120,892	6	95
Canal	Conn.	45	922,500	500,000	1,400,000	.....	.....	4	65
Hartford and New Haven	"	72	2,350,000	800,000	3,150,000	639,529	294,269	10	122
Housatonic	"	110	.....	.....	2,500,000	329,041	168,902	none	....
Hartford, Prov. and Fishkill	"	50	.....	.....	In progres	69,629	.....	none	....
New London, Wil. and Palmer	"	66	558,861	800,000	1,511,111	114,410	.....	....	39
New York and New Haven	"	61	3,000,000	1,641,000	4,978,487	806,713	428,173	7	95
Naugatuck	"	62	926,000	440,000	.....	.....	.....	8	....
New London and New Haven.	"	55	750,500	650,000	1,380,610	Recently	opened.	none	40
Norwich and Worcester	"	54	2,121,110	701,600	2,596,488	267,561	116,965	4	54
Buffalo and New York City	N. Y.	91	900,000	1,550,000	2,550,500	Recently	opened.	none	....
Buffalo, Corning and N. York.	"	132	.....	.....	In progres	.....	.....	none	65
Buffalo and State Line	"	69	879,636	872,000	1,921,270	Recently	opened.	....	130
Canandaigua and Niagara F.	"	50	.....	.....	In progres	.....	.....	....	....
Canandaigua and Elmira	"	47	425,509	582,400	987,627	76,760	39,360	none	68
Cayuga and Susquehanna	"	35	687,000	400,000	1,070,786	74,241	23,496	none	....
Erie, (New York and Erie)	"	464	10,000,000	24,003,865	33,070,863	4,318,962	1,800,181	7	70½
Hudson River	"	144	3,740,515	7,046,395	10,527,654	1,063,659	338,783	none	63
Harlem	"	130	4,725,250	977,463	6,102,935	681,445	324,494	4	51
Long Island	"	95	1,875,148	516,246	2,446,391	205,068	44,070	none	28
New York Central	"	504	23,085,600	10,773,823	33,859,423	.....	.....	....	106¼
Ogdensburgh (Northern)	"	118	1,579,969	2,969,760	5,133,834	480,137	195,847	....	19¾
Oswego and Syracuse	"	35	350,000	201,560	607,803	90,616	43,609	....	70
Plattsburg and Montreal	"	23	174,042	131,000	349,775	Recently	opened.	none	....
Rensselaer and Saratoga	"	25	610,000	25,000	774,495	213,078	96,737	....	....
Rutland and Washington	"	60	850,000	400,000	1,250,000	Recently	opened.	....	....
Saratoga and Washington	"	41	899,800	940,000	1,832,945	173,545	135,017	none	30
Troy and Rutland	"	32	237,690	100,000	329,577	Recently	opened.	....	33
Troy and Boston	"	39	430,936	700,000	1,043,357	Recently	opened.	none	....
Watertown and Rome	"	96	1,011,940	650,000	1,693,711	225,152	116,706	8	96
Camden and Amboy	N. J.	65	1,500,000	.....	4,327,498	1,388,385	478,413	10	148
Morris and Essex	"	45	1,022,420	128,000	1,220,325	149,941	79,252	7	....
New Jersey	"	31	2,197,840	476,000	3,245,720	603,942	316,259	10	131
New Jersey Central	"	63	986,106	1,500,000	2,379,880	260,899	124,740	3	....
Cumberland Valley	Penn.	56	1,184,500	13,000	1,265,143	118,617	76,890	5	....
Erie and North East	"	20	600,000	.....	750,000	Recently	opened.	....	125
Harrisburgh and Lancaster	"	36	830,100	713,227	1,702,528	265,327	106,320	8	55
Philadelphia and Reading	"	95	6,656,332	10,427,800	17,141,987	2,480,626	1,251,987	7	73
Philad., Wilmington and Balt.	"	98	5,000,000	2,399,166	8,067,285	868,038	541,769	5	76¼

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net earnings for last official yr.	Dividend for do.	Price of shares.
Pennsylvania Central	Penn.	250	9,768,155	5,000,000	13,600,000	1,943,827	617,625	....	97
Philadelphia and Trenton	"	30	....	....	....	....	....	....	....
Pennsylvania Coal Co	"	47	....	....	....	....	....	....	102½
Baltimore and Ohio	Md.	381	13,118,902	5,677,103	22,254,338	2,033,420	798,193	7	62
Washington branch	"	38	1,650,000	....	1,650,000	348,622	216,237	8	....
Baltimore and Susquehanna	"	57	....	....	....	413,673	152,536	....	..
Alexandria and Orange	Va.	65	....	....	In prog.	....	....	....	....
Manassas Gap	"	27	....	....	In prog.	....	....	....	....
Petersburgh	"	64	769,000	173,867	1,163,928	227,593	72,370	7	77
Richmond and Danville	"	73	1,372,324	200,000	In prog.	....	....	....	70
Richmond and Petersburgh	"	22	685,000	....	1,100,000	122,861	74,113	none	40
Rich., Fred. and Potomac	"	76	1,000,000	503,006	1,531,238	254,376	113,256	7	100
South Side	"	62	1,357,778	640,000	2,106,467	62,762	....	....	....
Virginia Central	"	107	1,673,684	469,150	2,392,215	210,052	99,077	10	50
Virginia and Tennessee	"	73	2,650,091	707,958	3,545,256	109,268	42,736	none	98
Winchester and Potomac	"	32	180,000	120,000	416,532	89,776	....	12	....
Wilmington and Raleigh	N .C.	161	1,338,878	1,134,698	2,965,574	510,038	153,898	6	....
Charlotte and South Carolina	S. C.	110	....	....	....	....	....	....	....
Greenville and Columbia	"	140	1,004,231	500,000	In prog.	....	....	....	....
South Carolina	"	242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Wilmington and Manchester.	"	...	....	....	In prog.	....	....	....	....
Georgia Central	Ga.	191	3,500,000	418,187	3,465,879	986,074	535,608	8	116
Georgia	"	211	4,000,000	1,214	....	934,424	456,468	7½	....
Macon and Western	"	101	1,013,088	163,000	1,277,334	278,739	149,960	9	101
Muscogee	"	71	....	....	In prog.	59,590	21,731	....	....
South Western	"	50	586,887	150,000	743,525	129,395	71,535	8	....
Alabama and Tennessee River	Ala.	55	....	....	In prog.	....	....	....	....
Memphis and Charleston	"	93	776,259	400,000	In prog.	....	....	....	....
Mobile and Ohio	"	33	879,868	....	In prog.	....	....	....	....
Montgomery and West Point.	"	88	688,611	....	1,330,960	173,542	76,079	8	....
Southern	Miss.	60	....	....	....	....	....	....	....
East Tennessee and Georgia	Tenn.	80	835,000	541,000	In prog.	....	....	....	....
Nashville and Chattanooga	"	125	2,093,814	850,000	In prog.	....	....	....	....
Covington and Lexington	Ky.	38	1,430,150	900,000	In prog.	....	....	....	63
Frankfort and Lexington	"	29	357,218	....	584,902	87,421	44,250	....	80
Louisville and Frankfort	"	65	....	....	....	....	....	....	....
Maysville and Lexington	"	...	....	....	In prog.	....	....	....	45
Cleveland and Pittsburgh	Ohio.	100	1,979,100	1,142,200	3,279,908	432,682	267,278	10	83⅛
Cleveland and Toledo	"	147	2,000,000	1,600,000	....	....	....	....	89
Cleveland, and Erie	"	95	....	....	....	....	....	....	....
Cleveland and Columbus	"	135	3,027,000	408,200	3,655,000	777,793	483,454	12	115
Columbus, Piqua and Indiana.	"	46	....	....	2,000,000	....	....	....	65
Columbus and Lake Erie	"	61	....	....	....	....	....	....	....
Cincinnati., Ham. and Dayton	"	60	2,100,000	500,000	2,659,653	321,793	200,967	....	102½
Cincinnati and Marietta	"	...	....	....	In prog.	....	....	....	62
Dayton and Western	"	40	310,000	550,000	925,000	Recently	opened.	....	75
Dayton and Michigan	"	20	....	....	In prog.	....	....	....	....
Eaton and Hamilton	"	36	....	....	....	....	....	....	56
Greenville and Miami	"	31	....	....	....	....	....	....	....
Hillsboro	"	37	....	....	In prog.	....	....	....	....
Little Miami	"	84	2,668,402	482,000	3,169,733	667,559	352,133	10	111
Mansfield and Sandusky	"	...	900,000	1,000,000	1,855,000	....	....	....	....
Mad River and Lake Erie	"	167	2,387,200	1,767,000	4,110,148	540,518	113,401	....	77½
Ohio Central	"	57	....	....	In prog.	....	....	....	79
Ohio and Mississippi	"	...	....	....	"	....	....	....	....
Ohio and Pennsylvania	"	187	1,750,700	2,450,000	....	Recently	opened.	....	....
Ohio and Indiana	"	...	....	....	In prog.	....	....	....	....
Scioto and Hocking Valley	"	44	750,000	300,000	"	Recently	opened.	....	....
Columbus and Xenia	"	54	1,291,700	26,000	1,310,062	314,434	168,612	10	107
Evansville and Illinois	Ind.	31	....	....	In prog.	237,506	....	....	....
Indiana Central	"	...	....	....	"	....	....	....	77½
Indiana Northern	"	131	....	....	"	....	....	....	....
Indianapolis and Bellefontaine	"	83	....	....	"	Recently	opened.	....	90
Indianopolis and Cincinnati	"	90	1,128,486	1,289,000	1,869,932	Recently	opened.	....	76
Lafayette and Indianapolis	"	62	....	....	....	....	opened.	....	....
Madison, Indianapolis & Peru	"	159	2,647,700	1,241,300	2,400,000	516,414	268,075	10	70
Terre Haute and Indianapolis	"	72	632,387	663,100	1,353,019	105,944	71,446	4	108
Rock Island and Chicago	Ill.	...	....	....	....	....	....	....	....
Chicago and Mississippi	"	135	2,400,000	4,000,000	4,600,000	....	....	....	....
Illinois Central	"	...	....	....	....	....	....	....	....
Galena and Chicago	"	92	....	500,000	In prog.	473,548	286,152	....	121
Michigan Southern and Ind. N.	Mich.	315	....	3,741,564	7,276,616	1,200,922	586,929	17	118½
Michigan Central	"	282	....	3,977,563	8,618,505	1,145,598	582,816	8	104½
Pacific	Mo.	38	....	non	In progres	Recently	opened.	....	....

Such things are bad in principle, and bad in practice, and are calculated to engender a spirit of speculation and extravagance exceedingly prejudical to the interests of railroads and to the public good.

The Galena and Chicago Railroad has been one of the most profitable and best conducted roads of the West. But as it enjoys no monopoly of *route*, it can for the future earn only a *reasonable* income upon its cost. It is unwise to raise public expectation to a pitch that cannot be sustained.

To Railroad Companies and Contractors.

SECOND hand engines for sale in good running order and condition.

2 engines, 10 in.×20in. cylinder, 4 drivers 54 inch diameter, about 16 tons weight.

2 engines, 10 in.×18 in. cylinder, 2 drivers 54 inch diameter, weight about 14 tons.

For terms, &c. apply to

CLARK & JESUP,
General Railroad Agents,
38 Exchange Place.

4t16

HEAVY FORGINGS.

(ALGER'S FORGE)

ALGER & REED, Proprietors,

MANUFACTURERS OF

STEAM BOAT WORK,

Shafting, Cranks, Cross Heads, Beam Straps, Connecting Rods, Piston Rods, Crank Pins, &c.

RAILROAD WORK,

Cranks, Truck and Car Axles, Connecting Rods and Frames.

SHIP WORK,

Anchors, Knees, Trusses, Davits, Toggles, &c., &c.

Also—Sugar Mill Shafts, Shapes, and all kinds of Forged Work.

CYRUS ALGER, Jr.,
EDWARD REED. BOSTON.

Duty on Railroad Iron.

A proposition is now before congress, which we hope will be successful, for the removal of the duty on railroad iron.

The object of the duty is two fold; revenue and protection.

We think it can be easily shown that the removal of the duty will not interfere with either of these objects; and that the effect of railroads being to add very largely to the commerce, consequently to the public revenue, of the country, and to increase enormously the consumption of iron, they should be exempt from taxation themselves, in int[illegible] of what they accomplish.

For a few years past the revenues from *customs* have increased beyond precedent, or expectation. This increase is due *directly* to the construction of *railroads*. Build a railroad through any portion of the country, and you at once increase the means and disposition of the people to add to their comforts and luxuries. The people of Ohio have undoubtedly more than *doubled* their consumption of *duty* paying goods within the past five years. Railroads have created a market for their products. A corresponding *import* trade has been the consequence. Railroads have filled the Treasury of the Government, as well as the pockets of the people. If the object, in relation to railroads be *revenue*, then their construction should be encouraged in every possible manner. Largely as the duties which they pay add to the public income, the amount which they are the means of adding *indirectly*, are often, in a very short period, ten fold greater. As before stated, therefore, were revenue the object, the first care of government should be

to remove every obstacle and impediment to their construction.

Such being the influence of railroads as far as the *revenues* of the country are concerned, the asking a remission of duty, is simply asking for *justice*. If they have been the means of increasing the receipts of government by an amount ten times greater than the duty paid on the rails imported, clearly they are entitled to receive them duty *free*. Such would be fair dealing; and such concessions are matters of common occurrence, in the ordinary operations of business. The *right* of the question therefore is favor in favor of the remission of the duty; and if *revenue* be the object, government should take the most effectual means of increasing it, which is the removal of all burdens upon the construction of railroads.

The question of *protection* can be as readily disposed of. A railroad that requires 10,000 tons of rails in its construction, will in less than five years create a demand for 30,000 tons of iron for *other* objects. The iron maker can well forego the *less* advantage for the *greater*. In fact he cannot so well fortify his own interests as encouraging these works, by removing whatever obstacles exist to their construction, among which is the present duty. He has only to see what railroads have done for him to be convinced of this. They have within a year or two past, doubled the annual consumption, and by creating a demand far in advance of the supply, have nearly doubled the price of all kinds of iron. Without railroads, the iron interest in this country would now be where it was three years ago, in a state of apparently ruinous depression. Shall the *instrument* of the mighty change which has been effected, be punished for the good it has done? Shall it continue to be crippled and its usefulness impaired; or shall it be allowed a freedom of expansion in obedience to the wants of the country, elevating every interest, material, moral and social.

There were imported into this country in 1852, from Great Britain alone, 439,893 tons of iron of all kinds. This amount has been very largely increased the past year, under a duty *much* larger than any manufacturer would ask, for protection. The amount imported in 1853 probably exceeded 600,000 tons. The import for 1854 will probably be equally great. If we have to import such an immense quantity, what objection can there be in making certain varities *duty* free, provided the duty be retained upon a much larger amount than our domestic establishments can produce. If the duty be taken from railroad iron, and the foreign article only used, a large quantity would still have to be imported, Our makers in such case would have more than they could do—in branches of manufacture where the present duty secures to them a very large profit. Could it be urged that the removal of the duty on rails would reduce the *make* of iron in this country, we admit the fact might be urged as a specious argument against such a step. But as it would still leave our own establishments with an overflowing business, the argument for *protection* falls completely to the ground.

The question of *protection*, therefore, is not involved in the suspension, for a limited time at least, of the duty. For several years to come, we must continue to import a much larger amount of iron, than that used for rails. Our domestic establishments will have ample employment in the manufacture of the *protected article*. In addition to these considerations, the manufacturer must have sufficient protection in the high price which prevails, and must continue to prevail, for an indefinite period. It is the opinion of well-informed parties, who have selected proper locations for their works, that they have nothing to fear from foreign competition with, or *without*, protection. It is certain that the British manufacturer has lost in a great degree the advantage which he once possessed, in having an abundance of *cheap* labor. The enormous emigration from Great Britain to the United States is rapidly equalizing the value of labor in the two countries, while *Australia* is producing the same effect in the former country in unsettling the minds of the laboring classes and in creating a spirit of speculation and adventure which is incompatible with a life of patient industry in the same kind of employment, that California exerted over the public mind of the United States. We see no reason why iron cannot be produced in suitable localities in the United States as cheaply as in Great Britain. Cheap food, the low cost of the raw material, and freedom from taxation, certainly ought, and we think do, off-sett the advantage that the Englishman possesses in cheaper labor, and greater abundance of capital. So that whatever may be the absolute price of iron for the future, the *cost* of production in the two countries will not essentially differ.

The effect of the construction of railroads has been to advance the price of iron nearly 100 per cent. By the present mode of valuation, the duties are consequently double. This advance alone is all the domestic manufacturer needs for protection. If railroads have had such an effect, why not remit the duty till the price shall fall again. They have secured the manufacturer greater protection than ever *asked* from the government. They have effected similar results for Government as far as revenue is concerned. They have been the means of paying into the Treasury an amount *five* fold greater the duty on rails. A case for interference in their favor by the remission of duty is thus made out, beyond cavil, to our mind.

Planting themselves on themselves on the broad ground of the justice and the expediency of the thing, railroad companies are entitled to import all articles used in construction duty free. But there is another reason why Government should interfere for their relief at the present time. The late rise in the price of rails have enormously increased the cost of their roads, while the threatened war in Europe has served to check almost entirely the flow of capital from that country to our own. This has thrown the cost of our roads upon our own people. The great demand created for money in consequence, has carried the rate of interest to a very high figure, and has exerted an equal influence in depressing the value of our securities. If Government remit the duty on all iron imported from and after the first day of July, 1853, the companies to be benefitted will not still be placed in as favorable a position as roads whose means were provided, and whose rails were purchased before that time. The amount saved on iron over present prices is equal to at least $30 per ton, while the price of securities at the two periods show an almost equal disparity. Such facts takes away any charge of partiality in favor of the companies whose roads are now in progress.

Brooklyn City Railroad Co.

The contract for the construction of the Brooklyn City Railroads was awarded about the 1st inst to Mr. Wm. O'Brien. who, we are happy to announce, is pushing the work forward with all the despatch the weather and the season will permit, and will have two miles of double track laid in Flushing Avenue, by the first of next week.

The contract of Mr. O'Brien, is for ten and one-half miles of double track railway, being in all twenty one miles of track, to be laid by 29th June. From Fulton Ferry their will be one main line through Fulton Street having branches through Sands street, Myrtle Avenue, Fulton Avenue, and Court Street, to Hamilton Avenue. A line is also to be constructed through Front Street, from Fulton Ferry to Flushing Avenue where it intersects with the line through Sands Street. This contract was let by the Company for about seventy thousand dollars or a little over six thousand dollars per mile.

The charter of the Company authorizes them to lay down about forty miles of track and we understand it is their purpose to extend their track ultimately to all portions of the suburbs, from the various ferries; but the preseint contract, we beleive, includes only those lines we have indicated above. These will furnish four lines to various parts of East Brooklyn, over two miles from the Ferry.

The Company have sufficient means to complete the work in the best manner and place upon it the proper Equipment; and, judging from the immense business at present transacted by the various lines of Stages the enterprise, will be a highly remunerating one. The proprietorship of the Stage lines is absorbed in that of the railways and while the stock will be merely transfered, competition will be avoided.

We are glad to see Brooklyn following suit in this matter of City Railways with so much energy as we look upon this mode of conveyance as much the safest, most comfortable, and expeditions for crowded Streets of any we have seen experimented upon.

For instance, two horses will haul, on a rail, twice or three times the number of passengers they can in a Stage over the pavements, thus getting rid of one half to two thirds the number of horses and vehicles. And, again, where Streets are crowded, the railways have an advantage over Stages, in point of safety from the fact that the Cars must keep on the track, and pedestrians know that if they get clear of the track, in such cases, they are clear of danger; while they must run for dear life from curbstone to curbstone in order to be secure from danger of being run over by Stages.

The Brooklyn City Railway Company are putting down the grooved rail and we understand contemplate having double tracks on each line. This will avoid much detention and add greatly to the earnings of the roads, by the inducements it will offer to citizens of New York to take residences in Brooklyn and suburbs, where they can breathe pure air, at least, a portion of the time.

Mr. O'Brien, is a contractor of great energy and has now over four hundred men on the work,

which as denoted above, he is obligated to have done by the first of July next.

Report of the State Engineer upon the State Canals.

[Continued from Page 237.]

VII. A COMPARISON OF THE PRESENT BUSINESS OF THE CANALS WITH THAT OF FORMER YEARS.

The annual reports of the tolls, trade and tonnage of the canals furnish much information on this subject, though it is to be regretted that they have not been prepared so as to show the movements of trade on each of the canals seperately, and also of each class of articles on each canal.

These reports are very voluminous, and are distributed through many volumes, and the figures are very large, so that it is troublesome to compare the details of the business of one year with that of several others.

For the convenience of those who desire to follow out these examinations for a series of years, the annexed table has been arranged, which does not repeat the quantities furnished in the reports, but in place thereof shows the comparative business of 1843 to 1853 inclusive; that of 1848 being used as the standard for the comparison. It exhibits the entire business of all the canals, and that of each separately; that arriving at, and that leaving tide water; that shipped at the lakes, and also each article and class of articles.

The rates of tolls were not changed from 1847 to 1849. In 1850 the tolls on pork and its products, corn, barley, iron, salt and merchandize were reduced. In 1851 the tolls on beef, cheese, hides, flour, wheat and railroadiron were reduced. In 1852 the tolls on lumber, pork, bacon, lard, tallow, cheese, butter, cotton, iron, merchandize and railroad iron were reduced.

The famine in Europe created so great a demand for breadstuffs, that the trade of 1847 was incrased beyond that of the following year, for this reason the comparison has been made between the years 1843 to 1847, and the years 1848 to 1853.

The examination of the table shows;

First—That the tonnage and the tolls of all the canals, and also of the Erie, and, with two slight exceptions, of the Champlain, increased year by year from 1843 to 1847; and that while the tonnage increased year by year from 1848 to 1853, the tolls remained about stationary.

Second—That the tonnage and the tolls of the Oswego canal increased rapidly to 1847, and also to 1850, and then, while the tonnage continued to increase rapidly, the tolls fell off.

Third—That the tonnage arriving at tide water increased year by year to 1847, and also from 1848 to 1853; and that the tonnage leaving tide water increased to 1848, fell off in 1849, and has rapidly increased since.

Fourth—That the tonnage shipped at Lake Erie has increased to 1847, (the increase was 80 per cent. in 1847, while a falling off of 25 per cent. took place in 1848,) and has increased year by year from 1848 to 1853.

Fifth—That the tonnage shipped at Oswego has increased nearly five times up to 1848, and has regularly increased every year since, being six times more in 1853 than in 1843.

Sixth—That the tonnage shipped at Whitehall has increased to 1846; that it fell off one-half in 1847, increased in 1848, and has continued to increase since, except in 1851, when it fell off largely

The comparison of tonnage and tolls of the different classes of articles transported shows:

First—That of the products of the forest. The tonnage has increased year by year to 1847 while the tolls increased to 1845, fell off in 1846, increased in 1847. The tonnage remained stationary in 1847, 8, and 9, and has since uniformly increased, while the tolls increased from 1847 to 1850, and have fallen off every year since.

Second—That of the products of animals. The tonnage and tolls have increased to 1849, and have since diminished year by year.

Third—That of vegetable food. The tonnage and tolls on all of the canals have increased year by year to 1847, and that the tonnage has increased irregularly from 1848, while the tolls decreased to 1851, and have since increased, and that while the tonnage of wheat and flour from this State and the tolls derived therefrom have decreased since 1848. From other States they have steadily and largely increased.

Fourth—That of manufactures. The tonnage and tolls have increased from 1843 to '53 some of the years showing a slight falling off

Fifth—That of merchandize. The tonnage has increased year by year since 1843, while the tolls increased to 1848, remained stationary to 1850, increased in 1851, fell off in 1852.

The following is a comparison of the tonnage and the tolls of some of the principle articles embaced in the foregoing classes.

Lumber.—The tonnage and tolls increased to 1847, fell off slightly in 1848, and have increased rapidly to 1853, except in 1852 when a falling off in tolls took place.

Beef, Pork, Bacon and Lard,—The tonnage and tolls have been irregular.

Butter and Cheese,—The tonnage and tolls have increased to 1848, since which they have rapidly decreased.

Flour.—The tonnage and tolls have increased to nearly double in 1847 and remained nearly stationary to 1850. The tonnage increased to 1852 and fell off in 1853 while the tolls decressed rapiddly in 1851 and also 1853.

Wheat.—The tonnage and tolls increased to nearly three times in 1847, fell of in 1848 and 9, increased in 1850, fell off in 1851, and increased rapidly in 1852 and '53.

Corn.—The tonnage and tolls of this article exhibit the most extraordinary fluctuations, the tonnage and tolls being six times as much in 1846, twenty times in 1847, and thirty times as much in 1851 as in 1843. They decreased in 1848, increased in 1849, decreased in 1850, increased largely in 1851, and decreased very much in 1852 and '53.

Oats and Barley.—The tonnage and tolls have generally increased year by year to 1853.

Domestic Spirits, Pig Iron and Castings.—The tonnage and tolls have generally increased year by year.

The stationary condition of the tolls on the Erie canal since 1848 is mainly owing to the diversion of a portion of the western trade by the way of Oswego, and also to the reduction of the rates in 1850, '51 and '52.

The tonnage from other States cleared at Oswego in the last six years, has been nearly eighteen hundred thousand tons, more than half of which was vegetable food.

The tonnage from other States shipped in 1852 at Oswego, and that sent to them by the way of Oswego during the last year, amounted to five hundred thousand tons, the tolls on which are estimated to have been over half a million of dollars.

A large amount of the trade by the way of Oswego belongs to Canada, and the imperfect navigation of the Erie canal west of Jordan has undoubtly caused the diversion of a considerable amount of trade to the Oswego route.

The reduction in the tonnage of the products of animals has been to some extent owing to the transfer of these articles to the Central and New York and Erie Railroads.

The following table shows the quantities carried by each from 1849 to 1853:—

	By Canals.	By Railroads. Cent RR.	N.Y.& E.
Product of animals, 1849..	91,854	13,859	not
" " 1850..	79,919	29,572	opened.
" " 1851..	68,799	33,847	53,991
" " 1852..	63,992	*50,000	75,943
" " 1853..	70,612	*80,000	99,755

*Estimated.

The reports of the railroad companies after 1851 do not furnish the amount of the articles forming the classification of "product of animals."

In the reports of the Central railroad for 1849 and, 50, and of the Central and Erie for 1851, these articles are stated from which it appears that on both the Central and Erie railroads in 1851, more than one-third of the amount of this class was made up of live cattle, which the canals did not carry. Another third on the Erie, and a considerable amount on the Central, was fresh meat, game and milk, which the canals could not carry; and that the amounts of beef, pork, bacon and lard, which together formed nearly one-half of the articles of this class carried by the canal, formed but one thirtieth of this class on the railroads, and that butter, cheese and wool were the only articles of this class carried by the railroads, which were to any extent diverted from the canal.

The diminished amount of the tonnage of vegetable food from this State, transported on the canals during the last few years, is ascribable to the changes which have taken place in the pursuits of the population of the interior; manufactories have sprung up in almost every section, which furnished a home consumption for these products. In the counties along the Mohawk and elsewhere, large quantities of flour are now imported, whereas formerly they exported it.

The cheaper and more fertile lands of the west can raise, grain which the farmers and mechanics of the State can purchase with the more valuable articles which they can raise, and manufacture more cheaply by being near the great market.

These changes have heretofore been more apparent in the New England States than in this State. It has been represented that five millions of barrels of flour are now imported into New England.

Similar changes will continue and will still further reduce the amount of the tonnage of this class of articles on our canals, from this State, while it will at the same time continue to increase the tonnage of other articles and will also require the importation of more of the agricultural products of the west, and thus furnish an equivalent of those products from this State that are no longer transported on its canals.

VIII. COMPARISON OF THE BUSINESS OF THE NEW YORK CANALS WITH THAT OF OTHER LINES.

The statistics of the trade passing through the channels which connect the interior with the Atlantic, are not furnished in the reports of other lines in a convenient manner to permit of a comparison with those of this State. It has been necessary therefore to obtain some of the results stated in the following tables from other sources, and in some cases to arrive at the division of the trade on the several lines by estimate.

A comparison of the trade passing through the New York canals, and other water lines to tide water, is made in the annexed table R.

From these statistics it appears.

1st. That the tonnage transported upon the St. Lawrence canals is fifteen per cent, and that transported upon the Pennsylvania canals is twenty-three per cent, of that transported upon the New York canals.

2d. That the tonnage arriving at tide water by the St. Lawrence canals is fifteen per cent, and that by the Pennsylvania canals is twenty-five per cent of that arriving by the New York canals.

3d. That the tonnage from the western States passing through the St. Lawrence canals and that passing through the Pennsylvania canals, are each seven per cent of that passing through the New York canals.

4th. That the tonnage from the Atlantic, destined for the western States by the way of the St. Lawrence canals, is thirteen per cent, and by the way of the Pennsylvania canals, twenty per cent of that by the way of the New York canals.

5th. That the whole tonnage of the New York Northern railroad is six per cent; of the New York Central, is nine per cent; of the New York and Erie, is fourteen per cent; of the Pennsylvania railroad, is two per cent; and of the Baltimore and Ohio, is seven per cent, of the tonnage of the Erie canal.

6th. That the tonnage shipped from the western

terminus eastward, by the Northern railroad, is eight per cent; by the New York Central, is three per cent; by the New York and Erie, is four per cent; by the Pennsylvania, is two per cent; and by the Baltimore and Ohio, is three per cent of that shipped by the Erie canal.

7th. That the tonnage shipped from the eastern terminus, westward by the Northern railroad is five per cent; by the New York Central is eleven per cent; by the New York and Erie is twenty-two per cent; by the Pennsylvania is five per cent; and by the Baltimore and Ohio is ten per cent of that shipped by the Erie canal.

8th. That the through tonnage carried by the Northern railroad is eight per cent; by the New York Central is two per cent, by the New York and Erie is three per cent; by the Pennsylvania, and also by the Baltimore and Ohio is two per cent of that carried by the Erie canal.

It thus appears that the business of the New York Canals exceeds the combined business of all the Canadian and Pennsylvania Canals, and the New York and Pennsylvania, and the Baltimore and Ohio railroads by forty per cent, and that the western business done by the New York canals is three times as great as the aggregate business of all of the other lines, and also that the chief part of the business done by these lines is the local traffic of the country through which they pass.

The cost of transport by these routes as stated in the last report, limits the extent of their competition for the trade of the west, and hence the rivalry for this trade is between the water lines leading to New York and those leading to New Orleans.

The annexed statement of some of the principal articles received from the interior at New York and New Orleans, will show the comparative amount of the trade conveyed to tide water by these lines.

	1848, '49 and '50.		1852 in tons.	
	N. Orleans.	N. York.	N. Orl'ns.	N. York.
Bacon, tons	60,545	11,778	35,000	4,861
Butter, "	2775	27,542	1,000	3,668
Beef, bbls,	200,901	264,072	9,300	12,430
C'rn, b'sh,	9,758,750	11,178,228	90,000	151,012
Cheese, tons,	3,998	43,569	1,500	8,000
Flour, bls.	2,312,111	8,636,207	92,700	363,160
Lard, tons,	130,406	12,124	19,600	5,287
Pork, bls.	1,536,817	211,018	46,500	11,068
Wheat, b'sh,	852,497	8,798,759	3,300	167,408
Ot'r grain	5,350,151	11,210,239	12,000	166,400

Statement showing the trade of the Lakes and the Valleys of the Ohio and Mississippi,

	For the year 1846.	
	Lakes.	Mississippi Valley.
Value of the commerce	$63,164,910	$183,609,725
Tonnage employed, steam, tons,	106,836	249,055
Tonnage employed, flat boats, tons,	.....	300,000
Tons transported,	3,861,088	.....
Value of shipping,	$6,000,000	$12,942,355
No. passengers carried,	250,000	.....
Receipts fm passengers,	$1,250,000	$3,191,982
Population dependent for communication to market,	2,928,925	6,576,027
No. mariners employed,	6,972	25,114

	For the year 1850.	
	Lakes.	Mississippi Valley.
Value of commerce,	$105,255,347	$275,000,000
Tonnage employed, steam, tons,	185,017	135,559
Tonnage employed, flat boats, tons.	.....	.....
Tons transported,	6,530,841	.....
Value of shipping,	$10,200,000	.....
No. passengers carried,	1,514,290	4,347,560
Receipts fm passengers,	$2,335,000	.....
Population dependent for communication to market,	.....	.....
No. mariners employed,	10,500	14,752

The above statement shows the trade of the Lakes and of the Valleys of the Mississippi and Ohio.

This table does not include lumber, sugar and tobacco, the former of which furnishes the heaviest amount of tonnage transported on the New York Canals while the two last named articles from the heaviest items of the tonnage delivered at New Orleans, because these articles are peculiar to their respective routes.

Of these exports from the West the product of the hog finds its chief market at New Orleans, as it is not slaughtered early enough in the fall to be carried through or canals, while wheat, flour, butter and cheese, which can reach the northern water lines before they are closed by frost, are chiefly conveyed through them.

Whenever the cost of transport by the northern route is cheapened to an extent equal to the interest on the cost of those articles for the period necessary to hold them until the northern lines are opened, they will seek that channel. The railroad lines penetrating the district, the trade of which is now disputed, will generally increase the trade through the northern lines.

The table also shows that the commerce of the Valley of the Mississippi and its tributaries is about twice as much as that of the lakes, but it is proper to remark that a portion of this commerce, on some of these tributaries of the Mississippi, already contributes to the lake business.

When the enlargement of the Erie canal is completed, the cost of transport will be so much reduced that the products of the west can be brought to the New York market from as far as the confluence of the Ohio and Mississippi rivers, cheaper than to New Orleans. Whenever this is done it will add to the business of the New York canals the trade of one-fourth of the States of Ohio, Indiana and Kentucky, of one-half of that of Illinois and Wisconsin, and of the whole of that of the western Mississippi valley above the mouth of the Ohio.

This territory, according to the census of 1850, contains

An area of.....	287,014 sq miles.
A population of.....	2,050,000
Land in farms improved.....	14,050,000 acres.
" " unimproved..	19,000,000 "
Cash value of farms.....	301,500,000 dollars.
" " live stock on do	59,700,000 "
The ann'l produc'n of wheat was	20,000,000 bushels.
" " " Indian corn was	120,000,000 "
" " " wool was.....	6,000,000 pounds.
" " " butter was.....	25,000,000 "
" " " cheese was.....	4,000,000 "
value of animals slaughtered...	15,000,000 dollars.

The State of Ohio has a lake coast along her northern border, and a river coast along the southern; she is crossed by three lines of canal and three of railroads from the Ohio to the lakes.

The quantity of wheat raised in this State till last year was over thirty millions of bushels, and of corn over sixty millions.

The house consumption does not amount to one-third of these quantities.

The area of that portion of the states including in the above table, (excluding the territories) is four times that of the State of Ohio, and embraces land which is capable of greater production.

In view of the facilities of the water lines of the Ohio, Wabash, Mississippi, Illinois, Wisconsin, Des Moines, Missouri and other navigable streams which penetrate it in all directions, and the railroad lines completed, and in progress, and the rapidity of the emigration to and settlement of the country, it is not unreasonable to suppose, that within a limited period, the population and products of this region will be equal to four times those of the State of Ohio, in 1853.

This would give a population of eight million, an annual production of over three hundred millions of bushels of wheat and corn, and a surplus of all kinds for export, equivalent to at least five millions of tons per annum.

The tonnage of the Erie canal from the western states arriving at tide water, has been as follows.

In 1840.....	158,148 tons.		
1845.....	304,551 "	Increase....	146,403
1850.....	841,501 "	"	536,950
1852.....	1,151,978 "	"	310,477
1853.....	1,213,690 "	"	61,712

The increasing ratio of the business from the western states, will fully occupy the augmented capacity which can be annually given to the Erie canal by its enlargement and improvement until it is completed.

The region just described, together with an increase of the products of the country already drained by the canal, will furnish a business more than equal to its increasing capacity.

CONCLUDING REMARKS.

In the preceding remarks an effort has been made to present the subject of the internal improvements of this State as a connected system and while discussing the comparative advantages and distinct duties of each kind of improvements to show also their mutually dependent relations and influence upon each other.

The change in the pursuits of the population of this state as well as the concentration at its commercial capital of so large a portion of the trade, wealth and population of the nation, has made it necessary to enter into an examination of the extension of the system of internal improvements through the great basins of the lakes, of the Ohio and Mississippi, from whence so large a portion of the trade and travel which is to furnish the future support of our trunk lines, must come.

The chief points which have been examined, may be briefly stated as follows:—

The natural features of the country suggested at a very early day, the lines upon which the main works were to be constructed, and the people of this State, availing themselves of these natural advantages, commenced and completed a system of internal improvements which was carried on partly by the government and partly by private enterprise, in advance of any similar undertaking in the Union, to a greater extent than any state of equal domain, and with a success that has excited the emulation not only of her sister States but also of the governments of Europe.

This system of public and corporate enterprise has been completed with an economy seldom equalled, and a judiciousness of expenditure which has been rarely excelled.

The natural water lines surrounding and penetrating the state indicated the artificial lines for connecting and extending them to the interior, while the commercial activity and enterprise of our people and the rapid development of a vast inland and fertile territory brought into existence an adjunct system, by means of which all secluded districts, which could not be reached by artificial water lines, were connected with the most accessible of those lines by a species of conveyance second only to canals for cheapness of transport.

The superiority of railroads for the rapid conveyance of passengers, and those descriptions of freight too perishable or too valuable to be forwarded by the slower but cheaper movements on water lines, soon led to their establishment over every section of the State, and to the paralleling of almost every water line.

The benefits which the completion of the Erie canal conferred on the citizens of this State lead to the extension of the system across the portages between the western lakes and rivers.

The sparseness of the population, the ready accessibility to the natural water lines, and the home demand for the products of the West from multitudes of new settlers, prevented the canals at first from proving as remunerative as their projectors anticipated, but the time is not distant when they will realize all their anticipations.

The difficulty of constructing even passable turnpikes through the rich soil of the West, the

facility and cheapness of building railroads, and their exact adaptation to the impulsive, energetic and social character of the people, united to make this species of conveyance a favorite one in that region, and railroads have there been built so fast that the "guide book" is almost valueless if it be three months old.

With the public mind thus turned so strongly in favor of railroads, it is almost hazardous to enter into an advocacy of the superior advantages of the water lines for the conveyance of the internal commerce of the country. The slow, plodding canal boat, with its cargo nearly equal to that of a locomotive and its long dashing train, is almost forgotton, until we are reminded by the daily arrival of these boats at this city, that it would require the daily arrival of one hundred locomotives and fifteen miles of cars to perform that business done on the Erie canal, which hardly attracts the attention of either the passing traveller or of our own citizens.

The experience and imformation obtained during the past year, in relation to the cost by the various channels, have confirmed the statements formerly presented.

The application of these general results showed that New York, with her canal enlarged, was the cheapest channel from the Ohio and Mississippi vallies to the Atlantic; and the farther examination of the present trade with the West showed that she had no formidable competitor for tbeir trade until the cheapness of transport down the Ohio and Mississippi intercepted it in their great basins.

The effect of the enlargement of the Erie canal would be to place within her grasp the traffic of an extent of territory which would soon afford one-half as much as that already passing through her canals.

As the public mind had become somewhat disturbed by the assertions that the railroads of this state were diverting a large portion of the business of the canals, and would probably prevent an increase in the revenue sufficient to pay for the completion of the unfinished works without resort to taxation, it was considered proper to carry out a comparison between the cost, capacity and revenue of the canals, and of those roads, and the cost and charges for transportation thereon, which resulted in showing that the aggregate cost of the Central and Erie roads was much greater than that of the enlarged Erie canal, while their capacity was less than one-fourth as great, and also that the cost of transportation on these roads was three times that of the canal, and the charges more than double.

The errors of the statements which were offered to prove that the railroad diverted the business from the canals were exhibited by showing that the receipts of the canal, compared with those of the railroads, was understated one-half, while the railroad receipts were overstated one hundred per cent.

It was shown that these errors were again doubled by making the receipts of the railroads the standard for a comparison, instead of the tonnage, when the railroad charges were more than doubled those on the canals, and that when by this comparison, the proportion alleged was thus reduced to one-eight, it was subject to farther reduction in consequence of more than one-half of the freight carried by the railroad being of a character that would prevent it from being carried at all on the canal;—that more than one-half of the remainder should be deducted for that portion of the freight carried by the railroad when the canals were closed, and that of the very small remainder, a very large proportion was local freight, which could not bear the expense of land transportation to the canals, and finally that the railroads brought a very large amonut of business to the canals, far exceeding the amount of all of the legitimate canal freight which they carried to market.

In the continuation of this subject it was found necessary to analyze the present business of the canals to ascertain the relative proportions of the different kinds of tonnage, and the revenue derived therefrom of the receipts and shippments from various localities. For this purpose extensive tables have been prepared, which exhibit for the first time the movement of the different articles and the error of such similar deductions made from the tables which have been hitherto published, was shown.

The comparison of the present business with that of each of the last ten years, has also been made, and some of the causes for a reduction in the revenues, while the tonnage was so rapidly increasing, have been given.

The incapacity of the canal to perform the business has led to the diversion of a portion of the western trade by the way of Oswego, which, with the reduction of the tolls, has diminished the revenue without producing a similar effect upon the tonnage.

The reduction in the amount of the tonnage of vegetable food from this state has been ascribed to the change in the articles cultivated and in the pursuits of the population, by means of which the the tonnage of other articles and the demand for western agricultural products has been increased, and thus furnished additional reasons for an immediate enlargement of the capacity of the Erie canal, and an assurance that its revenue would thereby be increased to a sufficient extent to repay its cost.

Locomotive "Empire State."

The productions of the New Jersey Locomotive and Machine Co. have been often noticed, but not illustrated, at our hands. The completion, by this company, of a recent order from the New York Central Railroad, has now however, brought out the accompanying drawing, executed in Bien and Sterner's best style, and which shows the general charcter of these engines for proportions and arrangement.

The subject of the illustration is one of an order for an enlarged series of engines, found necessary for the increasing business of the New York Central road. It has 17 inch cylinders, 20 inch stroke and 6 feet driving wheels, thereby combining unusual power aud speed for passenger business. The boiler room is in good proportion to the cylinder capacity, while the steam pipes and ports are of the most ample dimensions. The steam ports are of 16 inches length, being larger than any before made for locomotives in this country.

In the material and arrangement of the engine, as well as in the general details of the machinery, great strength has been secured. The cylinder connection is especially firm and secure, the smoke box being round, and the flanges of the two cylinders being made to embrace one-half of its circumference. This is besides the fastening to the frame. The back portion of the frame is also very stiff, and particularly convenient for repairs of the pedestals. The pedestals are forged separately, and with long backs, long enough to meet each other, so as to form a continuous "stiffening beam" beneath the frame, to which it is securely bolted. The trucks, rocker shafts, lifting motion, link suspension, etc., are also very strong. The pumps are of brass throughout.

In finish and ornament, this engine has a very fine appearance. The cylinders and steam chests are covered by handsome brass castings, not shown on the drawing. The domes, boiler bands, "cab," etc., are all finished in beautiful style.

We have before commended the plan and construction of these engines, so that little else, besides the drawing is now required. As successive improvements are developed however, by the New Jersey Locomotive Company, we shall continue to illustrate them.

$1,700,000

LOAN OF THE MORTGAGE BONDS OF THE NEW YORK AND HARLEM RAILROAD COMPANY.

This Company will receive proposals for one million seven hundred thousand dollars of their First Mortgage Bonds, issued in sums of one thousand dollars each, payable at the office of the Company, in the City of New York, on the first day of May, 1873, with coupons attached for the payment of interest at the same place semi-annually, on the 1st of May and 1st of November, at the rate of seven per cent. per annum.

These Bonds are secured by a First and only Mortgage, to Thomas W. Ludlow and R. M. Blatchford, Trustees, on the road and its appurtenances, made under special authority of an Act of the Legislature and vote of the Stockholders.

The whole amount of Bonds which can be issued under the Mortgage is $3,000,000, and will be the first and only lien upon the road, and will constitute the sole debt of the Company. The Company reserve $1,300,000 of this Mortgage for the exchange of all the outstanding plain Bonds of the Company now in existence, and propose to dispose of the residue, One Million Seven Hundred Thousand Dollars, for the purpose of discharging all their floating dept, and of payment of the expenditure necessary for the full completion of the improvements now in progress upon the road.

The capital of the company paid in is $1,500,000 of Preferred Stock and $3,600,000 of Common Stock, upon which regular dividends have been earned and paid for the last five years of Eight (8) per cent. per annum on the former and Four (4 per cent.) on the latter.

The receipts of 1853 amounted to 964,467, being an increase of twenty-six (26) per cent over 1852, and there is no doubt a still larger business will be done the present year.

The public have therefore now offered them a home security of the most reliable character.

The Acceptances of the Company will be received in payment for the Bonds.

Twenty (20) per cent, is required to be paid on acceptance of bids, and Twenty (20) per cent. every thirty days thereafter, for which Bonds will be given; Ten (10) per cent. however of the first instalment being reserved by the Company until completion of the contract; interest to be adjusted from the 1st of May.

Parties have the privilege of making payment in full and receiving their Bonds.

Sealed Proposals will be received at the office of BLATCHFORD & RAINSFORD, No. 58 Wall street, on or before the 10th day of May next, at 3 o'clock P M.

LOCOMOTIVE ENGINES.

A. & W. Denmead & Son,

BALTIMORE, MD.

HAVING THEIR IRON FOUNDRY & MACHINE SHOP in complete operation, are prepared to execute, faithfully and promptly, orders for

Locomotive or Stationary Steam Engines,
Woolen, Cotton, Flour, Rice, Sugar, Grist or Saw Mills,
Machinery for cutting all kinds of Gearing,
Hydraulic, Tobacco, and other Presses,
Car and Locomotive patent Ring-Wheels, warranted,
Bridge and Mill Castings, of every description,
Gas and Water Pipes, all sizes, warranted,
Railroad Wheels, with best fagoted axle, furnished and fit up for use, complete.

Estimates for Work, in any part of the United States, furnished at short notice. ap.14-15

Krupp's Best Cast Stee

SUITABLE FOR

MINT AND PLANTERS' ROLLERS.

ALSO of large size (72 by 18 inches diameter) for rolling Iron, Copper or Brass.

PISTONS of Steam Engines and Shafts for steamboats, not exceeding six tons weight in one piece.

Also the celebrated

CAST STEEL AXLES AND TIRE

made from a solid bar without welding. Agents

THOMAS PROSSER & SON,
16tf 28 Platt street, New York.

Railroad Iron.

470 TONS 47 lbs. per yard of best quality now in store at New Orleans. For sale by

VOSE PERKINS & CO.
1m16 9 South-William street.

For Sale.

THE ROSSIE FURNACE AND FOUNDRY, etc., St. Lawrence County, N. Y.—This well known establishment, having attached to it a large and complete Casting House and Machine Shop, with ample accommodations for workmen, and every convenience necessary to the the prosecution of an extensive business, together with valuable Iron Mines and Mining Rights, also Timber Lands, is offered for sale by the proprietor, who retires from the business. The capacity of the Rossie Furnace for making iron, is believed to be unsurpassed by any charcoal Furnace in the country, having repeatedly run up to fourteen tons per day, with 55 to 60 per cent. yield from ores—specular red oxides—coal, per ton, 100 bushels. The same has been in uninterrupted operation for over twenty years, and the reputation of its iron is established throughout the West. The location of these works is in the village and town of Rossie, county of St. Lawrence, N. Y., six miles from the River St. Lawrence, and connected therewith by a plank road. Their cost, apart from premises and water power, has involved an expenditure of over $100,000, and their present efficiency, in every respect, is considered unexceptionable. For further information apply to D. W. Baldwin, Agent, at the works, or to the undersigned.

G. PARISH.

Ogdensburgh, N. Y., April, 1853. 15,3m*

Cast Iron Chilled Slip Tires for Engine Driving Wheels.

THE undersigned, principal Agent for the above improvement, offers it, with the right of use, to Railroad Companies and others. The cost of these Tires is less than *one-third* that of wrought iron, the cost of renewing *one-quarter;* and the *adhesion, strength,* and *durability* equally as great, as will be proved to the satisfaction of any party. Over *two hundred* locomotives of the heaviest class, (25 to 30 tons,) upon the Baltimore and Ohio Road, are shod with cast iron, with an acknowledged saving over wrought iron equal to $30,000 per annum. Address

15,1.f. ZERAH COLBURN, Paterson, N. J.

Chambers' Wrought Iron Car Wheels and Axles.

THE advantages of these wheels, in connection with their comparative cheapness, are their *strength, lightness,* and *durability,* being wholly of wrought iron, and the sett of four wheels and two axles weighing only about *one ton.* They are now used on the London and Northwestern and other principal lines of English Railways, carrying greater weights than other wheels, say 12 to 15 tons, and in *no instance* has one given way. Samples, testimonials, &c. may be seen on application to the manufacturer's agents,

NAYLOR & CO.,
99 & 101 John street

New York, 12th April, 1854. 15tf

Notice to Contractors.

Office of the Milwaukee and Horicon R. R. Co.
Milwaukee, Wis., March 15th, 1854.

PROPOSALS will be received at this office till the first day of May next for the construction of the second division of the Milwaukee and Horicon Railroad, from Horicon to Berlin a distance of forty-two miles or sections thereof.

Maps, profiles and specifications will be ready for the examination of bidders on and after the tenth day of April next.

JOHN B. SMITH,
Pres't M. & H. R. R. Co.

Railroad Car Works.

THE Undersigned are prepared to manufacture for Railroad Companies, Passenger, Baggage, Cattle, Freight, Gravel and Hand Cars, also Baggage Barrows and Freight Trucks.

F. HUNGERFORD & CO.

Maysville, Ky., Sept. 29, 1853.

Notice to Capitalists.

THE GREENVILLE AND COLUMBIA RAILROAD COMPANY

Now offers for sale their Coupon Bonds, redeemable in ten years, bearing interest at seven per cent, per annum, payable semi-annually, secured by mortgage of the entire Road, being the first lien upon it.

For a full understanding of the purposes, value of the property, and prospects of the Company, the following statement is made. It is proposed to issue Coupon Bonds, to the amount of three hundred thousand dollars which with those already issued will make the Bound debt $800,000. The mortgage of the Road bearing date the eighteenth instant, is to cover these Bonds, as well those *issued,* as those *to be issued,* to the amount of $800,000, and no more.

The Road was finished on the 9th December last, is well equipped, and in full and succesful operation. The entire length of the Road, including its Branches, is 164 miles, and cost as follows

Surveying and Engineering,.....	$ 66,881 34		
Right of way.....	10,441 89		
Graduation,.....	474,787 69		
Masonry,.....	323,50 00		
Trestle Bridging,.....	88,351 69		
Broad River Bridge,..	37,571 33		
Saluda Lower Bridge,	6,530 78		
Saluda Upper Bridge,	8,416 48		
Timber for Tracks,...	158,181 23		
Iron Rails,.....	575,235 59		
Spikes and Chairs,...	50,891 30		
Superstructure and Track Laying,.....	94,921 42		
			$1,604,560 74
Real Estate,.....	$ 22,754 90		
Depots and Water Stations,.....	44,745 52		
Workshop Building,..	17,125 54		
Machinery for Workshop,.....	16,702 19		
			101,328 15
Locomotive Engines,.	$119,176 48		
Passenger and Freight Cars,.....	130,000 00		249,176 48
			$1,955,065 37
Accounts for Materials, Work, &c., entering into construction, not yet fully ascertained, but supposed to be about,.....			100,000 00
			2,055,065 37
Capital Stock paid in,	$1,100,029 49		
Assessment on Stock paid in,.....	131,937 26		
	$1,231,966 75		

The Earnings of theRoad for the last three months in an unfinished condition were as follows:

October—From Freight...	$12,761 13	
From Passsengers	8,321 17	
From Mail,.....	700 00	
		$21,782 30
November—From Freight.	$ 9,764 41	
From Passeng's	8,403 35	
From Mail,...	800 00	
		$18,967 76
December—From Freight,.	$12,205 26	
From Passeng's	9,034 00	
From Mail,....	900 00	
		$22,139 26
For three Months,.....		$62,889 32

The whole expenses of the Road, it is believed, will not exceed $11,000 per month, or 50 per cent, on the earnings. the Road, for the greater part, is well constructed—of good materiel and heavy iron, and could not now be made and furnished as it is for less than $3,000,000.

By order of the Directors,

THOMAS C. PERRIN, *President.*

January 18th, 1854.

N. B. The Bonds can be had by applying to Mr. Jacob Cohen, of Charleston; Mr. J. P. Southern, of Columbia, or to me at Abbeville Court House. Bids for these Bonds are requested.

Railroad Iron.

1,300 TONS superior quality Yorkshire rails 56 pounds T pattern can be immediately delivered at New York, Savannah, or New Orleans.

For sale by

NAYLOR & CO.

New York, April 1st, 1854.

Brass Tubes for Locomotive and Marine Boilers.

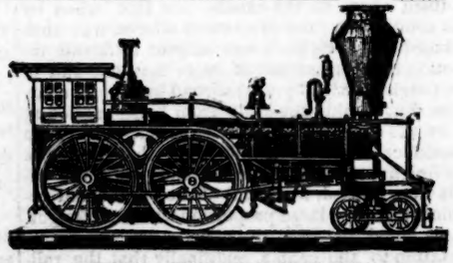
THE undersigned having been appointed Agent for the highest respectable manufacturers Messrs. Allen, Everitt & Son or Birmingham, is prepared to take orders, at fixed prices, fly-Brass Tubes of all diameters, for Engines.—For further particulars and inspection of patterns, please apply to

JOHN H. HICKS,
March 1854. 90 Beaver str.

Notice to Contractors.

PROPOSALS will be received for all the heavy work on the Blue Ridge Rail Road, South Carolina; Blue Ridge Rail Road, Georgia: Tennessee River Rail Road, North Carolina; Knoxville and Charleston Rail Road Tennessee. The above lines of rail-way are consolidated and under the management of one Company, Extending from Anderson South Carolina, via Clayton, Georgia, Franklin North Carolina, to Knoxville Tennessee, a distance of 194 miles. That part of the road from Anderson South Carolina, to the Turniptop Mountain, a distance of 40 miles is principally earth excavation, of about equal quantities of cut and fill, with several bridges. From the Turniptop Mountain to the Rabun Gap, a distance of 24 miles, the work is very heavy, there being on the line one tunnel of 5800 feet, one of 1400 feet, and one of 400 feet in length; a suspension bridge across the Chatnga River 500 feet long, with some very heavy earth and rock cuts. The rock in the Tunnels is gneiss stratified. From the Rabun Gap to twenty miles below Franklin, a distance of 50 miles, the line follows down the Tennessee River; the class of work is principally side hill evcavation, some of which is rock; their will also be several bridges. From the point 20 miles below Franklin to Hardens, a distance of 35 miles, the line follows the Tennessee River the entire distance, causing heavy side rock excavations. On this portion of the line will be several expensive bridges, and a tunnel of about 1000 feet. From Hardens to Knoxville, a distance of 45 miles, the line follows the river about eight miles, then leaves it, running across the Chilhona mountains almost a north line to Knoxville; this portion of the road is heavy work, with about equal quantities of cut and fill, an expensive bridge 1000 feet long and 45 feet high, crossing the Holston River at Knoxville. The character of the rock from Knoxville to Hardens is limestone, and from Hardens to Franklin gneiss rock stratified, and from Franklin to Anderson, stratified sand stone and gneiss rock. The character of the earth is sandy and clay loam. The line for the whole distance runs through high table lands, well settled, remarkable for its health, good water and ample resources for subsistence. The above line of railway offers great inducements to experienced contractors. The undersigned will be prepared to receive proposals and enter into contracts for the graduation, bridging, tunneling and masonry for the heavy portion of the line, from and after the 1st day of May next, at Knoxville Tennessee, Franklin North Carolina, and Pendleton South Carolina, and will continue at such places, until the same is under contract. Profiles and maps of approximate location can be seen at each of the above places after the 1st day of May. Proposals are asked with cash payments, also eighty per cent cash and twenty per cent in the Capital Stocks or Bonds of the Company. All communications prior to may 1st must be addressed at Pendleton South Carolina.

4,13 ANSON BANGS & Co.



ZERAH COLBURN,

CIVIL AND MECHANICAL ENGINEER.

OFFERS his services to Railroad Companies and others, in designing and constructing Locomotive Engines of superior adaptation and efficiency.

Refers to CHAS. MINOT, Supt. N. Y. and Erie Railroad; WM. RAYMOND LEE, Pres't, Ogdensburg railroad; G. W. WHISTLER, Esq., Vice Pres't. New Haven railroad; ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., O. M. HYDE, Esq., Detroit.

M. W. BALDWIN & CO., Engineers,

Broad and Hamilton streets, Philadelphia,

WOULD call the attention of Railroad Managers, and those interested in Railroad Property, to their SYSTEM OF LOCOMOTIVE ENGINES *in which they are adapted to the particular business for which they may be required;* by the use of one, two, three or four pair of driving wheels; and the use of the whole, or so much of the weight as may be desirable for adhesion; and in accommodating them to the grades, curves, strength of superstruction and rail and work to be done.—By these means the maximum useful effect of the power is secured with the least expense for attendance, cost of fuel and repairs to Road and Engine. With these objects in view and as the result of twenty-three years practical experience in the business by our senior Partner we manufacture *Five different kinds of Engines* and several classes or sizes of each kind.

Particular attention paid to the *strength of the machine* in the *plan and workmanship of all the details.* Our long experience and opportunities of obtaining information, enables us to offer these engines with the assurance that in efficiency, economy and durability they will compare favorably with those of any other kind in use.

We also furnish to order, Wheels, Axles, Bowling Tire (to fit centres without boring), Composition Castings for Bearings; every description of Copper Sheet Iron and Boiler work; and every article appertaining to the repair or renewal of Locomotive Engines.

M. W. BALDWIN. MATTHEW BAIRD.

C. Floyd-Jones.,

Division Engineer 3d and 12th Divisions.
ILLINOIS CENTRAL RAILROAD.
Vandalia, Ill.

Boiler and Tank Rivets, Nuts and Washers;

All Sizes of

Bolts and Bolt Ends

for Sale by
BRIDGES & BROTHER,
64 Courtland st., N. Y.

New York and Erie R. R.

PASSENGER TRAINS
leave Pier foot of Duane street, as follows, viz:—

BUFFALO EXPRESS, at 7 a. m. for Buffalo direct, over the N. Y. & E. R. R., and the B. & N. Y. City R. R., without change of baggage or cars.

MAIL, at 8½ a. m. for Dunkirk and Buffalo, and intermediate stations. This train remains over night at Elmira, and proceeds the next morning.

WAY EXPRESS, at 12½ p. m. for Dunkirk, and intermediate stations.

ACCOMMODATION, at 3 p. m. for Delaware and intermediate stations.

NEWBURG EXPRESS, at 4 p. m., for Newburg.

WAY PASSENGER, at 4 p. m., for Piermont and intermediate stations.

NIGHT EXPRESS, at 5 p. m. for Dunkirk and Buffalo.

On Sundays only one Express Train—at 5 p.m.

These Express Trains connect at Dunkirk with the Lake Shore Railroad for Cleveland, Cincinnati, Toledo, Detroit, Chicago, etc.

CHAS. MINOT, Sup't.

Railroad Iron.

2000 TONS Railroad iron, weighing about 59 lbs. per yard, "Erie" pattern of G L and Crawshay's manufacture, now on the way from the shipping ports in Great Britain to this port, for sale by

P. CHOUTEAU, Jr., SANFORD & CO.,
December 4, 1852. No. 51 New street.

Travelling Agent Wanted.

A PERSON is wanted to travel throughout the United States, as Agent for one of the most respectable manufacturing establishments in this country. He must be a man of easy, good address, industry, perseverance, cheerful temperament, a competent salesman, possessing a practical knowledge of machinery, iron and steel, and able to produce the best testimonials as to integrity and general good character. One who has acted in the capacity of master mechanic and superintendent of a railroad machine shop would be preferred. Permanent employ and liberal compensation will be given. It will be a needless waste of time for any one to apply who is not fully qualified to suit the wants stated. He is not wanted *to learn*, but must *have already learned* to act his part. Address EDART NORI, Post Office, New York. ap12-3t*

To Civil Engineers and Surveyors.

TRANSITS, Level and Surveyors Compasses Manufactured on the most improved principle and of the Best Quality by THOMAS HUNT,
No. 53 Fulton Street,
1y10* *New York.*

Passenger Cars for Sale.

TWO first class Passenger Cars, built by one of the best car builders in the country, for the Baltimore and Ohio Railroad.

The above presents a rare opportunity to any Railroad Company wishing first class cars for immediate use.

They will be sold at a bargain for cash or good paper. Enquire at the office of Bridges & Brothers, 64 Courtland Street.

New York, Feb. 21st, 1854.

Railroad Iron.

THE Subscribers are at all times prepared to enter into contracts for Railroad Iron, of Messrs. Guest & Co., or other leading manufacturers' make, delivered free on board vessels in England or in this country.

BOORMAN, JOHNSTON & CO.,
Sept. 7. 90 Broadway, New York.

MANUFACTURERS' AGENCY
FOR

RAILROAD FURNISHING,

Office 18 *Dearborn St., Chicago, Ill.*

E. R. T. ARMSTRONG, Agent,

KEEPS constantly on hand *Railroad Spikes*, Burden's make, *Railroad Wrought Iron Chairs*, superior quality, Ames' manufacture of *Locomotive Tires, Cranks, &c.* Washburn, Pond & Co.'s *Car Wheels*, of best Salisbury and Stirling Iron, mixed under direction of Mr. Washburn, and warranted.

Orders invited for *Locomotive and Car Rolled or Hammered Axles—Locomotive Lamps—Superior Pumps, for Stations, Switch Stands, Levers, and Targets—Locomotive Drivers and Cylinders—Boxes and Pedestals—Screw Cutters and Drilling Machines—Frog's Heads and Heel Blocks—Screw Presses, for forcing Wheels and Axles.*

Oils of a superior quality, made expressly for railroads, and free from gums.

Refer to—Illinois Central railroad, Ohio and Mississippi river railroad. Michigan Southern railroad. Galena and Chicago Union railroad. Milwaukee and Mississippi river railroad. Little Miami railroad, Cincinnati, Hamilton and Dayton railroad. Central Ohio railroad. 14.6mo's.

S. SEYMOUR & O. GENERAL RAILROAD AGENCY, Office, Metropolitan Bank Building. No 110 Broadway, have to dispose of at private sale, in amounts to suit persons desiring to invest, the following valuable Securities:

LOUISVILLE CITY BONDS, at 30 years

OHIO AND MISSISSIPPI R.R. STOCK, drawing interest.

MAYSVILLE AND LEXINGTON MORTGAGE BONDS, at 24 years.

MAYSVILLE AND LEXINGTON R. R STOCK.

SCIOTO AND HOCKING VALLEY R.R. STOCK.

SCIOTO AND HOCKING VALLEY R.R. FIRST MORTGAGE CONVERTIBLE BONDS, at 11 years.

LOUISVILLE AND NASHVILLE R.R. STOCK.

BUFFALO AND STATE LINE R.R. BONDS.

They are prepared to negotiate contracts for the construction and equipment of Railroads in any part of the country, including furnishing corps of engineers and contractors locomotive engines and cars, railroad bridges. McCallum's patent, railroad iron, chairs, spikes, switch irons, &c., &c.

Notice to Contractors.

PACIFIC RAILROAD OF MISSOURI.

SEALED proposals will be received by the undersigned, at their office in the city of St. Louis, until six o'clock, P. M., of the 15th day of May next, for the Grading, Masonry, etc., of the first division of the South-west Branch of the Pacific Railroad, extending from Franklin Depot, the present terminus of the road, some 40 miles West of St. Louis, to the crossing of the Gascenade River, a distance of about 78 miles. The line will be divided into sections of about one mile each, and proposals may be made for one or more sections. The line, plans, profiles, specifications, form of contract, etc, will be ready for inspection on and after the first day of May next. The work to be let is quite heavy, situated in a healthy country, and is easy of access.

The undersigned reserve to themselves to reject all proposals that are not satisfactory.

A. S. DIVEN & CO.
March 24th, 1854.

Railroad Companies and Contractors,

WANTING first rate German or Irish laborers for railroads and canal work, or mechanics of any kind, will find the undersigned a first rate office to give their orders to, as thousands of emigrants apply to them every season for employment.

Satisfactory reference will be given to well known companies and contractors, and men are forwarded to any part of the Union.

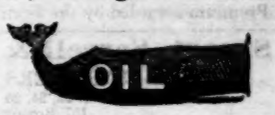
MORRIS & COHNERT,
European, American Employment Office,
287 Broadway, corner Reade-st.
3m*10 Under the Irving House, New York.

THE

New Yorker Handels-Zeitung

A GERMAN Commercial Paper, containing Prices Current, Market Reports, Exchange and Stock Rates, Shipping List and Correspondences from all parts of the world, appears twice a week in two separate editions, viz: one for home circulation, published each Wednesday and Saturday morning; the other for circulation in Europe,—the only German Paper published in the United States admitted to the German States—appears before the departure of each mail steamer for Europe. Terms:—The paper, per annum, at New York, $5, for Germany, ful Postage included, $11, and for all oter parts of Europe, the U. S. Postage inclus., $8. Advertisements taken at liberal terms.

Howland, Burgess & Smitth,



MANUFACTURERS of PURE SPERM OIL for Railroad Engines and Lamps, of Refined Whale Oil now so generally used for *car wheels.*—Works, *New Bedford Mass*—Store, Albany, N. Y.

Orders (directed to either place) *respectfully solicited from Superintendents.*—All Oil warranted pure and perfectly satisfactory.

Pneumatic Pile Driving.

FOUNDATIONS FOR BRIDGES, PIERS &C.

BY THE PNEUMATIC process hollow cylindrical piles or tubes from eight inches to ten feet diameter can be driven through sand, mud, clay or other material to any required depth. The complete success which has attended the operations of this process shows it to be eminently practicable in, and much the best method known for, the construction of railroad bridges across deep and rapid rivers where permanent foundations o great strength are necessary, and have to be secured at grea depth.

Applications for license for the use of the invention in any part of the United States may be made to H. V. POOR, Esq Editor of the *American Railroad Journal*, 9 Spruce street; o for contracts for pile driving, or licenses as above to

CHARLES PONTEZ,
March 25th, 1854. New York.

To Contractors.

PACIFIC RAILROAD OF MISSOURI

THIRD AND FOURTH DIVISIONS.

IT is intended to make contract for the third divisions of this road, (extending from the Missouri river at Jefferson City, passing near Georgetown and Warrensburgh, to the Missouri river near Independence, about 160 miles,) so soon after the first of May next, as satisfactory proposals shall be made.

Contract will be made for the whole now offered, or such parts as particular contractors may select in form and quantity to suit the interests of the company. Proposals are asked for by the cubic yard, with cash payments; but contractors may, if they desire, accompany their offer with proposals for two thirds cash and one third in county and railroad mortgage bonds or other securities.

Profiles and maps of approximate location can be seen after first of April next at Pacific Railroad Office, in St. Louis, and any information will be given on application to the Engineer.

The first division of this road is now in operation; the second division to Jefferson City under present course of construction.

The third and fourth divisions now offered pass over a high, rolling mixed prairie and timbered country, and for healthfulness and supply of provisions will compare favorably with any part o the west. THOS. ALLEN, Pres.

THOS. S. O'SULLIVAN, Chief Eng.
Pacific R.R. Office, St. Louis, Feb. 1854.

Railroad Iron.

1250 Tons Erie Pattern Guest and Co's make, weighing 57½ lbs. per yard, to be shipped from Wales in July and August, for this port—for sale by

BOORMAN, JOHNSTON & CO.,
99 Broadway, New York.

June 9, 1853.

Railroad Iron.

THE "Montour Iron Company" is prepared to execute orders for Rails of the usual patterns and weights, and of any required length not exceeding 30 feet per rail. Apply to

THOS. CHAMBERS, President,

September, 1850.

Railroad Iron.

THE Undersigned, Agents for the Manufacturers, are prepared to contract to deliver free on board at shipping ports in England, or at ports of discharge in the United States, Rails of superior quality, and of such weight or pattern as may be required.

VOSE, PERKINS & CO.,
9 South William St.

New York, June 1, 1851.

Knox & Shain,

MANUFACTURERS OF
LEVELS, TRANSITS AND SURVEYING COMPASSES.
No 72 Dock st. first door south of Walnut, west side
PHILADELPHIA.

First Premium awarded by the Franklin Institute.

Stuart, Serrell & Co.,

CIVIL ENGINEERS,
Rooms 22, 24, 26 & 27,
157 Broadway, New York.

CHARLES B. STUART, DANIEL MARSH, EDWARD W. SERRELL, SAMUEL MCELROY.

Important to Railway Co's.

A GREAT improvement has recently been perfected in the manufacture of Dumping Gravel Cars by which the cost is materially lessened and the strength and durability much increased.

We have secured the right to manufacture these improved Cars and can supply them at prices ten per cent. lower than the ordinary kind.

Orders directed to the Hamilton Car Co., Hamilton, Ohio, will receive prompt attention.

South-Western Car Shops, Madison, Indiana.

THE subscriber is prepared to execute orders at short notice, for all kinds of Passenger, Freight and other descriptions of Railroad Cars.

Work delivered at any point accessible by railroad, or by the Ohio and Mississippi rivers.

Facilities for transportation, enable the subscriber to afford peculiar advantages to Companies requiring work delivered in the South and West,

W. CLOUGH.

Refer to

JNO. BROUGH, Esq. WINSLOW, LANIER & Co.

feb.18. 1m.

Ontario, Simcoe & Huron R.R. CANADA.

THIS road opened in May last to Lake Simcoe is expected to be completed to the Georgian Bay, Lake Huron a distance of 96 miles in June next where it will form the shortest and most agreeable route to the North Western States to Lake Michigan and to the Mineral Regions of Lake Superior.

At present the Passenger Trains leave Toronto for Barrie (64 miles) daily at 8 a.m. and 3. 30 p.m., returning the same day—On the opening of the navigation a Steamer will ply on Lake Simcoe in connexion with the Trains and will convey passengers through that Lake and Lake Conchiching to Orilla whence a short portage of eighteen miles will take them to the waters of Lake Huron to the Steamer (Kaloolah) which runs to the Sault St. Marie and intermediate ports forming the most expeditious and agreeable route to the Mineral Regions of Lakes Huron and Superior.

Arrangements will be made on the completion of the road to the Georgian Bay for a line of first class Steamers to extend their trips to the ports on Lake Michigan.

ALFRED BRUNEL,
Superintendent.

Railroad Iron Via Quebec.

JOHN ANDERSON & CO.
COMMISSION MERCHANTS,
SHIPPING AGENTS AND BROKERS,
Quebec and Montreal.

PARTICULAR attention given to the Transhipment of Iron, &c., in Transitu for the Western Lake Ports, and to the Shipment of Rails in Great Britain.

Quebec, Dec. 2, 1853.

To Locomotive Engine Builders and Engineers.

THE Proprietors offer for rent for a term of years, with immediate possession, the splendid property, known as the BELLEVILLE IRON WORKS, situated on the Mississippi, directly opposite the City of New Orleans, and within 300 feet of the River, with which it is connected by fine wharves and landings.

The buildings are of brick, with slated roofs, and were erected in 1848 at a very heavy expense; are of a most substantial and durable character and admirably fitted for a Foundry and Machine Shops, or almost any mechanical business. They now contain a new and powerful Engine and Boiler and sufficient machinery, say, planing machines—lathes—boring machines, blacksmith's tools, &c., &c., to employ 100 mechanics, and could be put in working order in a few days. The Buildings cover a lot 300 feet square and are amply large to receive the necessary machinery for the use of 800 to 1000 workmen.

The terminus and depot of the New Orleans, Opelousas and Great Western Railroad is situated about 300 yards from the above property, which could be availed of to great advantage for the manufacture of Locomotives and Railroad work, generally as well as Steam Engines, Sugar Mills, and other descriptions of Machinery.

There are no Shops in New Orleans for the manufacture of Railroad Machinery, and as the Railroad Companies now organized in that city contemplate the construction of over 1000 miles of road,—a large part of which is already under contract,—the property now offered for lease offers a most eligible opportunity for parties desiring to contract to furnish the Engines and Machinery,—for those roads. Responsible contractors with their works on the spot would have an advantage over Northern Workshops in contracting for the Work of the Railroads terminating in New Orleans.

The Establishment and prospect of remunerating work to be secured immediately are worthy the attention of manufacturers and Engineers generally.

Applications from responsible parties will be promptly attended to, and to satisfactory parties the proprietors of the Works can offer favorable terms and arrangements.

Letters may be addressed to

R. B. SUMNER,
No. 61 Camp Street,
New Orleans;

and further information may be had by applying to Messrs. BARSTOW & POPE, Pine Street, New York.

Railroad Spikes, Boiler Rivets, etc.

THE Subscribers, Agents for the sale of James S. Spencer's, Jr., Railroad and Boat Spikes, Boiler Rivets, and Wrought Iron Chairs for Railroads, made at his Works near this city, will execute all orders with promptness, despatch, and of the best quality.

ALSO IMPORTERS of English refined and Merchant bar Iron; Extra refined Car and Locomotive Axles (from 3½ to 6½ inches in diameter); B. O. Locomotive Tire (welded by Baldwin). Also, supply Boiler and Flue Iron cut to pattern or otherwise.—Spring, Shear, and Cast Steel, etc., etc., etc.

T. & E. GEORGE.

Philadelphia, November 14, 1850.

Railroad Iron.

THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.

They will also make contracts for American rails, made at their Trenton works, from Andover Iron, in whole or in part, as may be agreed upon.

They are prepared to furnish Telegraph, Spring and Market Wire; Braziers and Wire Rods; Rivets and Merchant Bars to order, all made exclusively from Andover Iron. The attention of parties who require iron of the *very best* quality for special purposes, is respectfully invited.

COOPER & HEWITT,
17 Burling Slip, New York.

February 15, 1850.

SHANAHAN & LOEBER,

181 William-st,
(1st floor-Up Stairs,)
NEW-YORK.

MANUFACTURERS OF
THEODOLITES, TRANSITS, LEVELS,
Surveyors' Compasses, Drawing Instruments,
Chains, Scales, Levelling Rods, &c. 1y10

Notice to Contractors.

MEMPHIS & OHIO RAILROAD.

SEALED proposals will be received at the office of the Memphis and Ohio Railroad Company, at Memphis, Tenn., until the 15th day of April next, for the grubbing, clearing, gradation, and masonry of the first 65 miles, from Memphis to Cherryville.

Contractors must give the most undoubted security for the completion of the work at the time, and in the manner specified; and contracts will be let in sections, or for the entire work, as may be deemed best by the Directors.

The Directory reserve the right of rejecting all bids, should none prove satisfactory; and it is desirable that all propositions should be submitted, with the view of preparing the whole work for the iron as soon as possible. Bids of that character and otherwise equally favorable, will have preference.

Maps, plans and specifications may be seen at the office of the company, after the first of April.

E. PEABODY,
Engineer in charge.

Notice To Contractors.

OFFICE OF THE VICKSBURG, SHREVEPORT AND TEXAS RAIL ROAD COMPANY
Monroe, La., March 8th, 1854.

SEALED PROPOSALS wil be received at this office until the 1st day of June next, at 2 o'colck P. M., for clearing and grading the section of road between the Mississippi river and Richmond, in the parish of Madison—a distance of about twenty miles; also, for clearing and grading the section between the city of Shreveport and the Texas State line, in the parish of Caddo—a distance of about twenty miles; and, also, for clearing and grading a section of twenty mile, beginning at the Ouachita river and running west, in the parish of Ouachita.

Bids may be made for the entire sections, or any portion thereof, not less than one mile, and those proposing to take stock of the Company in part payment, will be most favorably considered. The lines, plans, profiles and quantities of work, together with the specifications, are now ready for examination in the office of the Company. Payments in the proportion of four-fifths of the amounts due will be made at the end of each month or quarter, as may be agreed on, during the progress of the work.

The company reserves the right to accept such proposals as in their judgment will secure the prompt and faithful execution of the work according to contract; or to reject all if none are satisfactory.

Further information may be obtained from the undersigned.

N. D. COLEMAN,
President.
P. J. TOURNADRE,
Chief Engineer.

7t14

Railroad Iron.

5,000 TONS T RAILS, about one-half weighing 59 lbs. per yard and the remainder 56 lbs. per yard now in bond and for sale by

JOHN H. HICKS,
90 Beaver street.

2d Feb'y.

H. SAWYER

(of the late firm of SAWYER & HOBBY),
Manufacturer of Transits and Levels,

HAS removed to Union Place near Warburton Av., Yonkers, N. Y.